

付 属 資 料

- 1 事前評価調査 ミニッツ (2006年2月)
- 2 R/D前ミニッツ (2006年11月)
- 3 実施競技議事録 (R/D) (2006年11月)
- 4 ローカルコンサルタント作成事前評価資料 (2006年3月)

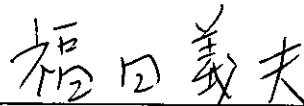
**MINUTES OF MEETING
BETWEEN THE PREPARATORY STUDY TEAM
AND AUTHORITIES OF HIS MAJESTY'S GOVERNMENT OF NEPAL
FOR THE JAPANESE TECHNICAL COOPERATION
ON PROJECT FOR SERICULTURE PROMOTION AND EXTENSION
IN THE KINGDOM OF NEPAL**

Japan International Cooperation Agency (hereafter referred to as "JICA") conducted the Preparatory Study Team (hereafter referred to as "the Team"), headed by Mr. Yoshio FUKUDA, to the Kingdom of Nepal from February 12 to 20, 2006 for the purpose of discussing the framework of the requested project entitled "Project for Sericulture Promotion and Extension" (hereafter referred to as "the Project").

During its stay in the Kingdom of Nepal, the Team carried out field surveys and had a series of discussions on the Project with the development authorities and concerned stakeholders of the Kingdom of Nepal.

As a result, the Team and the Nepalese authorities concerned agreed to report to their respective governments the matters referred to in the document attached herewith.

Kathmandu, February 20th, 2006



Yoshio FUKUDA
Leader
Preparatory Study Team
Japan International Cooperation Agency



Shiva Sundar SHRESTHA
Director General
Department of Agriculture
Ministry of Agriculture and Cooperative

Abbreviations

APP	Agriculture Perspective Plan
DOIED	Directorate of Industrial Entomology Development
DOA	Department of Agriculture
HMG/N	His Majesty's Government of Nepal
JICA	Japan International Cooperation Agency
JT/JTA	Junior Technician and Junior Technical Assistant
MOAC	Ministry of Agriculture and Cooperatives
NGO	Non Governmental Organization
PDM	Project Design Matrix
PRSP	Poverty Reduction Strategy Paper
PSSCRC	Parental Stock Seed Cocoon Resource Center
SDD	Sericulture Development Division



THE ATTACHED DOCUMENT

1. Background

1-1 The relevancy of the proposed Project in reference to the policies and strategies for agriculture development in the Kingdom of Nepal

In 2001, the HMG/N formulated the Tenth Five-year Plan for 2002-7 as full-fledged Poverty Reduction Strategy Paper (PRSP), in which “poverty alleviation” is the main objective same as in the Ninth Five-year Plan.

The Promotion of Agriculture is regarded as an important issue for the poverty alleviation and economic development in the Tenth Five-year Plan because of 1) the high ratio of the labor involved in agriculture sector to national total population and 2) high contribution to the total GNP of the country.

In addition to the Tenth Five year Plan, the Agricultural Perspective Plan (APP) for 1995-2015 has been the guideline for the long-term strategy for agricultural development. In the APP, the priority outputs are shown as 1) High value crops, 2) Agribusiness, 3) Livestock, and 4) Forestry. And in addition, sericulture is taken as one of the promising high value crops for income generation in the rural area.

In addition to APP, the National Agriculture Policy in 2004 indicates “improve people’s level of living through a sustainable growth in agriculture by transforming the current subsistence oriented farming into competitive and commercial one”. It is directed to make the agriculture sector more competitive in the regional and worldwide market by creating a commercialized and competitive farming system.

Thus, the relevancy for the requested Project for the promotion of sericulture can be found from the above-mentioned plans and policies.

1-2 The implementation of the Preparatory Study

Following the output of the Mini Project-type Technical Cooperation for Sericulture Promotion, the HMG/N made an official request to the Government of Japan to implement a technical cooperation project that would support the sericulture development and thus contribute to the alleviation of poverty of the farmers in rural areas. In response to the request, the Japanese Government decided to implement the follow up program for the Mini Project-type technical cooperation for two years since February of 2003 through JICA, followed by the dispatch of the individual expert on Sericulture Promotion for one year. In January 2006, JICA has decided to implement the preparatory study to assess the proposal and to work out a tentative framework of the requested Project.

2. Objective of the Study

- (1) To confirm the background of the requested Project and assess the relevance and feasibility of the Project in terms of consistency with national policy, commitment



and preparedness of concerned organizations.

- (2) To collect data and information on the status of sericulture in Nepal through field visit and discussion with the stakeholders.
- (3) To prepare the tentative framework of the Project, i.e. the project purpose, expected outcomes, major activities and organizational arrangement for implementation through discussion with stakeholders.
- (4) To explain the necessary measures to be taken by the HMG/N as preconditions for the Project.

Members of the Study Team

Mr. Yoshio FUKUDA, as Team Leader

Deputy Resident Representative, JICA Nepal Office

Mr. Osamu SHIMIZU, as Sericulture Promotion

Director of Laboratory of Sericultural Science and Technology,

Gunma Sericultural Experiment Station, Gunma Pref. of Japan

Mr. Yoshinobu KINOSHITA, as Cooperation Planning

Assistant Resident Representative, JICA Nepal Office

Itinerary of the Study

As per attached in the Annex 1

3. The review of the past cooperation activities

3-1 The Japanese cooperation to the Kingdom of Nepal

1) The dispatch of individual expert (1996-1999)

Through this, the possibility of implementing the technical cooperation in sericulture was determined.

2) Mini Project-type Technical Cooperation for Sericulture Promotion(1999-2002)

3) Follow up Program of the Mini Project-type Technical Cooperation(2003-2005)

4) Dispatch of the Individual Expert

At the stage of final evaluation of the Mini Project-type Technical Cooperation conducted in December 2002, some of the positive outputs of the project like silkworm pure lines preservation introduced from Japan and hybrid loose egg production are confirmed. However, the difficulty in the sustainability of the technology of sericulture was pointed out and the Evaluation Team recommended HMG/N side to take more initiative for sustaining and disseminating the technology in Nepal in the future. With full consideration of this aspect, the follow-up program was implemented for two year. After the termination of the follow-up program, the individual expert was dispatched to formulate the forthcoming Project framework as well as to give advice to HMG/N side in policy aspects.

3-2 The cooperation of the other Donor agencies in sericulture

- 1) By the assistant of the Government of Republic of Korea, Reeling machine was installed at Industrial Entomology Project in Khopasi in 1970's. Moreover, in 1998 a reeling machine was installed at Silk Processing Center in Itahari.
- 2) UNDP had implemented the "Sericulture for Rural Development Program" from 1997 to 2001.
- 3) DANIDA implemented the Sericulture Promotion Program in Makwanpur and Tanahu Districts in collaboration with a Jwala Mukhi Club Nepal (JMC-Nepal) a NGO.

With regard to the 2) and 3), the main activities were conducted in the rural area targeting at the community/grass root level.

4. **Result of the Study**

4-1 The trend of the silk consumption within the country

The domestic demand of the silk is around 160 tons per year. Compared to its peak demand in late 1990's, the figure has decreased drastically in proportion to the decreasing demand for "Pashmina" in the market. The trial for developing the new silk product and developing the new market is still in low-pitch by the private sector. HMG/N has initiated little practical action on this aspect as of now.

The major portion of silk consumed in domestic market is imported from India and China. With its well-advanced quality and reasonable price, the silk produced in Nepal is hard time to compete with Chinese and Indian silk. So, it is unlikely that Nepalese indigenous silk will hold a certain share in the domestic market in the very near future.

On the other hand, the domestic demand for silk in India is still huge and stable since "Saree", which is a traditional women's cloth in the region uses the silk thread. Considering the improving economic condition of India, this tendency is likely to continue and it seems to have high potentiality for Nepalese silk to be exported to India. (After Nepal entered into the WTO in 2005, HMG/N has targeted the competitive and commercial market prevailed in the regional and global level. In this context HMG/N should set necessary policies and take appropriate action accordingly for selling silk as well so as to be competent against the Indian and Chinese silk. Without this, income generation for the producer/farmers will not occur and poverty alleviation in the rural area through the silk promotion is not to be expected.

4-2 The situation of silk industry in Nepal

The silk thread is now mainly produced in Sericulture Development Division in Khopasi and Silk Processing Center in Itahari. As there are no private firms to produce thread from cocoon, the domestic raw silk production is managed completely by HMG/N side. The low quality of the cocoon causes the degradation of the quality of silk thread as well as the silk products. For example, the international market price for "Grade A" silk



of international standard is 22 US\$ per kg (as of Feb. 06), which is almost equal to around 1,600NRs. On the contrary, the production cost for Nepalese domestic silk is around 2,500NRs per kg, which means 900NRs differences to sell in international market. Due to this, the certain amount of thread produced at the public facility tends to be stored. The possibility to sell it at a rate lower than its price cost meaning that the more HMG/N produce the thread, the more lose on the budget of HMG/N side is likely to be lost.

Regarding the twisting of the silk thread, there is twisting machine in Khopasi but there is no technician to operate these facilities.

4-3 The actual situation of the cocoon production in the rural area in Nepal

Table.1 (Annex.2) shows the current status of the silk production in Nepal. As the comparison, the Gumma Prefecture in Japan's case is also shown. The number of the farmers who deal with sericulture in Nepal as of now is estimated to 1,200 silkworm rearer households based on the official statistics. The productivity of cocoon is quite poor due to many reasons. The key limiting factors are 1) No application of the appropriate technology for rearing of silkworms at the field level due to the absence of the qualified technical manpower and proper facilities to provide favorable condition for silkworm, 2) The input (compost fertilizer) to the mulberry plant is too low and farmers can't provide silkworms with enough mulberry leaf, and so on.

The grading of the cocoon is not done in fully-fledged professional manner thus the seri-farmers bring their cocoon to inspector of the HMG/N without removing floss though there are some exceptional cases. The unit price of cocoon is on the basis of the shell ratio as well as visual observations. But the fully-fledged grading system is still to be adopted, thus the determined price is actually not equivalent to its true value. The collection and purchase of the cocoon from farmers are dealt only by the HMG/N side as well as the thread factory, which further leads towards the budget loss of the HMG/N.

The HMG/N is distributing silkworm eggs with nominal prices and other disinfectants are distributed free of cost. Regarding the silkworm egg, the production capacity is around 10,000 silkworm boxes per year, which is sufficient volume compared to the current demand around 3,000 boxes. However, there is some space to improve the hatching rate of silkworm egg from 60-70 % to higher by introducing correct incubation technology in the field level.

4-4 The Implementing organization by HMG/N

The organizational chart is as shown in Fig.1. Each organization's mandate is;

- 1) Directorate of Industrial Entomology Development(DOIED)
 - To formulate a sericulture promotion plan in Nepal,
 - To prepare for the budgetary plan,
 - To take initiatives to formulate laws and regulation regarding sericulture, and
 - To organize the various activities by eight branch offices



- 2) Sericulture Development Division(SDD)
 - To maintain and preserve the pure lines of silkworm, Bombyx Mori L.,
 - To produce F1 silkworm eggs and distribute,
 - To conduct training for sericulture staff and seri-farmers,
 - To produce raw silk products by harvested cocoon in the area, and
 - To deal with the collection and purchase of cocoon in its command area
- 3) Parental Stock Seed Cocoon Resource Center(PSSCRC) and Sericulture Development Program
 - To give technical guidance to seri-farmers in each jurisdiction area, and
 - To deal with the collection and purchase of cocoon in the area.
- 4) Mulberry Sapling Management Center
 - To produce and distribute mulberry sapling to nationwide

5. The major strategy and outputs requested for the further Project Implementation

5-1 To verify the Quality Cocoon Production in one limited place and disseminate the result nationwide

As mentioned in Chapter 4, the first priority issue to be tackled with is to make Nepalese silk industry competent. In order to have competent Nepalese silk it is important to make the farmers able to produce Quality Cocoon because the quality is a fundamental matter for sericulture development. Firstly, the model shall be developed and secondly the model needs to be disseminated by the ownership of HMG/N, thus making the Project implementation efficient and effective.

The model is focusing on the Quality Cocoon Production but with full consideration of the importance of selling of the product, the verification activities can include post cocoon harvest technology which is considered appropriate and economically matching in Nepal like “Zaguri”, hand-made silk techniques in Japan and promotion for selling the product in the area.

5-2 Setting the standardized sericulture technical asset

After having the verification for Quality Cocoon Production, the standardization of the appropriate technology (c.f. mulberry plantation, silkworm rearing, silkworm disease prevention, etc) shall be done for the purpose of sustainability and future’s replication of the model introduced by the Project. Technical manual for the appropriate and sustainable sericulture in Nepal shall be prepared while the program is under the implementation.

5-3 Human resource development at various level through On the Job Training(OJT)

Together with the verification activities for Quality Cocoon Production and application of the standardized techniques, there must be the active interaction of the





seri-farmers and public service, through JT/JTA of HMG/N. For the smooth interaction among seri-farmers, public service and public sector, it is indispensable to assign the social mobilizer and organize the opportunity of "Learning by Doing". Thus it is desirable for this social mobilizer with the active involvement of Non Governmental Organization (NGO) to sustain its activities even after the phasing out of the verification activities.

Regarding the post cocoon activities and promotion of the products in the area, private sector shall be involved which will further contribute to the enhancement of the capacity of the seri-farmers and HMG/N staff. The involvement of the private sector shall enhance further on the sharing the know-how on quality control and marketing as well.

6. Tentative Framework of the Project

Based on the result of the review of the past cooperation, and the present status of sericulture industry in Nepal, prioritization of various activities considering funding limitations, technical feasibility, and timeframe of the Project, a tentative framework of the project is worked out as follows. It is subject to further deliberation and perusal by concerned authorities. Modifications may be made through further discussions and negotiations before it is finalized.

(1) Title of the Project

Promotion of Quality Cocoon Production and Processing Project in the Kingdom of Nepal

* Regarding the project title, the Study team just recommends the modification from the former accepted title, considering its objectives and outputs, as it needs to be discussed with the authorities concerned and finalized.

(2) Target Area

Selected VDCs in Dhading District

(3) Target group

Seri-Farmers in the target area

(4) Duration of the Project

Five (5) years (2006-2011)

(5) Master Plan of the Project

1) Overall goals

I) The model for Quality Cocoon Production and post harvest activities are replicated nationwide in the Kingdom of Nepal

II) The income of seri-farmers are increased through the improvement



2) Project Purpose

The Quality Cocoon Production and silk product promotion in target/model area is verified with capacity building and strengthening the linkage among seri-farmers and stakeholders.

3) Outputs

- I) The standardized technology for Quality Cocoon Production and post cocoon harvest is established
- II) The staffs' capacity for promoting the improved technology and post cocoon know-how are strengthened
- III) The linkage among Government, NGO and Private sector are strengthened.

4) Major Activities

- 1-1 The improvement for mulberry plantation, cultivation and harvesting
- 1-2 The improvement for Silkworm rearing and disease prevention technology
- 1-3 The improvement for incubation and young silkworm rearing
- 1-4 The practice of cocoon post harvesting technology (Drying, Hand-reeling)
- 1-5 The practice of original silk product promotion

- 2-1 The Institutional building of seri-farmers by NGO
- 2-2 Conduct training for seri-farmers by NGO and HMG/N
- 2-3 Conduct training for JT/JTA by HMG/N and NGO
- 2-4 Conduct training for cocoon post harvest technology
- 2-5 Hold workshops for promotion of silk product in the area

- 3-1 Hold monthly meeting to share information
- 3-2 Introduce appropriate monitoring system for Joint Steering Committee

7. Measures to be taken by HMG/N side

7-1 Measures to be taken at the Project implementation level

- 1) To assign the necessary number of JT/JTA and researcher for the verification of Quality Cocoon Production and foundation of the standardized technology and arrange the organizational mandate when the needs arises.
- 2) To stabilize the staff in DOIED and the Project involved to the Project and promise to set the appropriate personnel rotation to keep the know-how within the organization
- 3) To adopt the concept of Public Private Partnership and willingly collaborate with the NGO staff and private sector personnel who works at filed level
- 4) To be principal in handing over the collection and purchase of the cocoon to the private sector and observe strictly the rule for setting price by the result of grading,



which means the cocoon price to be determined by its true value by the supervision of HMG/N inspector.

7-2 Measures to be taken to disseminate the output of the project nationwide

- 1) To make concrete policy shift to the Quality Cocoon Production in sericulture.
- 2) To assign the necessary number of HMG/N staff and allocate corresponding budget not only for the verification area but also other area in Nepal for the purpose of disseminating and replicating the model.
- 3) To set up the concrete policy in the near future regarding the strategy for strengthening the partnership with the private sector.

8. Roles and responsibilities of Implementing Agencies / Organizations

With full consideration of the difficulty of clarifying the each organization's TOR rigidly before launching of the Project because of its nature, the tentative idea shown below is subject to change according to mutual consultation among all. And the Project will create conducive environment for the private sector on the role described below. But the principle is that each organization should be faithful in making favorable relationship and maintaining good collaboration for the futures sake of beneficiaries, the seri-farmers in Nepal.

(1) Department of Agriculture, Directorate of Industrial Entomology Development

- To develop the appropriate and practical technology asset for seri-farmers
- To practice the technology of asset collaborating with NGO and improve when necessary
- To provide the existing service for distributing silkworm egg, disinfectant, and mulberry sapling, and so on
- To inspect the cocoon quality properly
- To enable the use of Governmental facilities and equipments
- To organize training program for JT/JTA not only the personnel involved but also external JT/JTA with the result of the field activities
- To take initiative for disseminating and replicating the result of the model

(2) NGO as a social mobilizer and extensionist

- To facilitate seri-farmers in the area and strengthen their organization management through institutional building
- To organize practical training and extension activities including the awareness building of the importance of Quality Cocoon and improve the curriculum collaborating with the HMG/N side

(3) Private sector

- To purchase the collected cocoon based on the market rate



- To deal with the post cocoon process and development of the original silk products in the area
- To publicize the Quality Cocoon in the area and produced silk products in both Nepal and overseas collaborating with the related organizations
- To promote the selling and deal with the silk trade

(4) JICA

- To give the technical support and advice for the establishment of the standardized technology for Quality Cocoon Production
- To support training and extension activities at the field level.
- To support the promotion of selling of the product in the area
- To help HMG/N to formulate the policy for strengthening the relationship with private sector.

9. Issues to be clarified further

(1) The Project Design Matrix (PDM) is to be prepared through discussion by JICA and HMG/N to describe the indicator of the achievement level of overall goals, project purpose, and outputs.

(2) The input for the Project is to be determined only after the detail framework is fixed by the PDM.

(3) The management structure, so called Joint Steering Committee is also to be discussed when the PDM is fixed.

(4) All the JICA experts, staff or contracted personnel including NGO are obliged to observe the security guideline of JICA Nepal Office. So the necessary measures are to be taken to secure the staff in the field by the decision of JICA side.

10. Others

The Master Plan of the Project and the measures to be taken by both sides will be finalized in the Record of Discussions to be signed by the representative of JICA and the representative from HMG/ N

LIST OF ANNEXES

Annex 1	Schedule of the Preparatory Study
Annex 2	Comparison of Sericulture between Nepal and Gunma Pref, Japan
Annex 3	Organizational Chart of Governmental Sericulture Promotion




Annex. 1 Schedule for Preliminary Study Team

Date	Week	Trans	Schedule	Stay
1	11-Feb Sat	NRT-BKK	Airflight	BKK
2	12-Feb Sun	BKK-KTM	Airflight PM: CC to JICA	KTM
3	13-Feb Mon		10:00 CC & Meeting w/ MOAC/DOA/DIED 14:00 Meeting w/ DOA/DIED 15:00 Visiting private company dealing with silk	KTM
4	14-Feb Tue	Khopasi	Visiting Khopasi SDD	KTM
5	15-Feb Wed	Dhading	Visiting Dunibesi SNMP	KTM
6	16-Feb Thu		10:30- Discussion of the cooperation framework	KTM
7	17-Feb Fri		10:00- Meeting on contents of MM (1) 14:00- Meeting on contents of MM (2)	KTM
8	18-Feb Sat		13:30- Meeting on contents of MM (3) *Finalization Internal Meeting	KTM
9	19-Feb Sun		AM: Signing of MM	KTM
10	20-Feb Mon		PM: Reporting to JICA/EOJ	KTM
11	21-Feb Tue	KTM-BKK	Airflight	BKKorAir

List of Mission Members

- Mr. Yoshio FUKUDA**, as Team Leader
 Deputy Resident Representative, JICA Nepal Office
- Mr. Osamu SHIMIZU**, as Sericulture Promotion
 Director of Laboratory of Sericultural Science and Technology,
 Gunma Sericultural Experiment Station, Gunma Pref. of Japan
- Mr. Yoshinobu KINOSHITA**, as Cooperation Planning
 Assistant Resident Representative, JICA Nepal Office

Annex. 2

Table.1 The comparison of Sericulture between Nepal and Japan

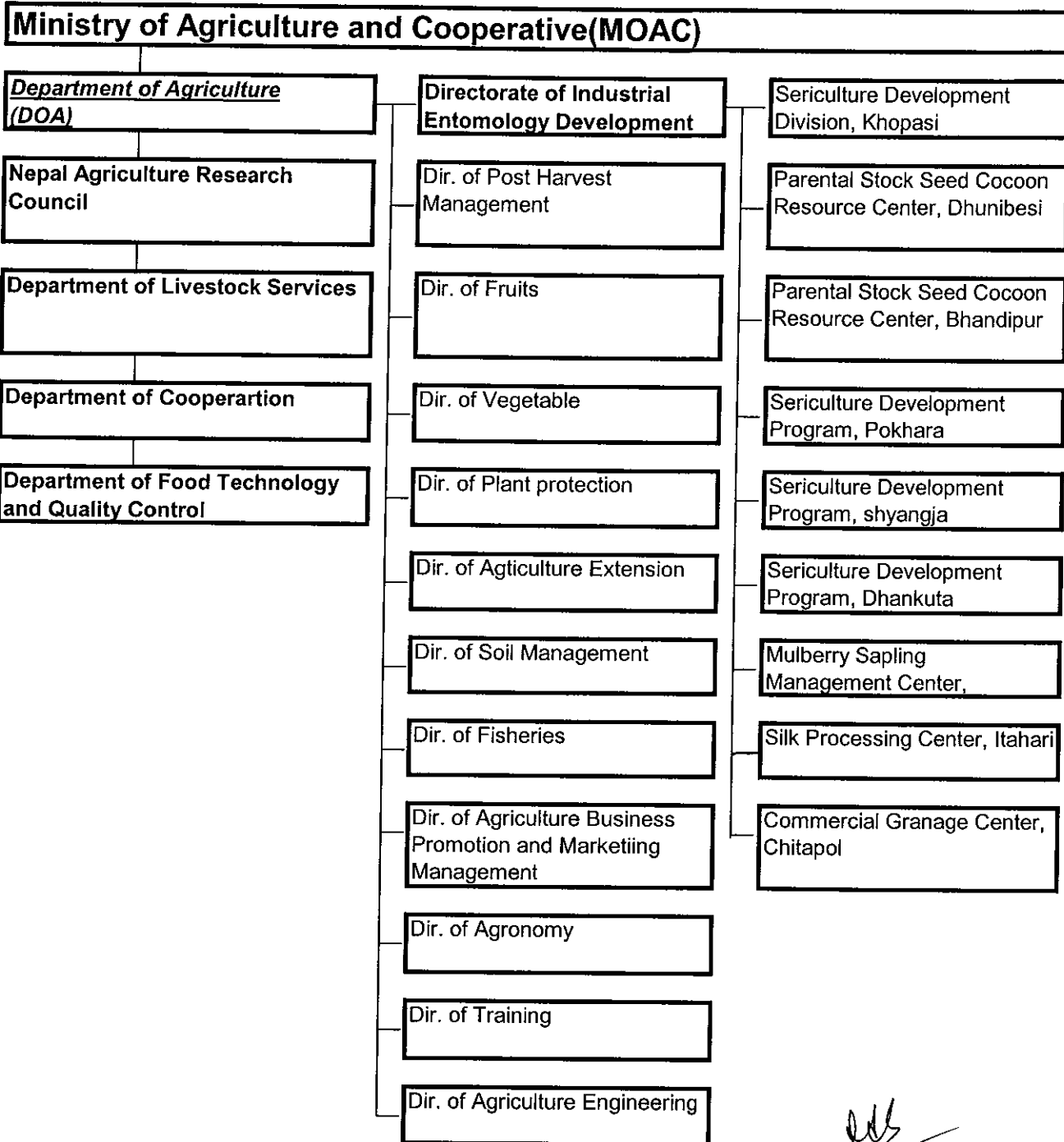
Items	Nepal (2003/04)	Gunma Pref (2002)	Notes
Farm Households	1,200	939	
Mulberry planted area	300ha	937ha	
No. of brushing box	2,933 box	11,825box	The capacity of silkworm egg production is 10,000 box per year
Cocoon Production	34,1t	392,5t	Unit price 160NRs/kg
Cocoon Production per household	28.4kg	418kg	
Cocoon Production per box	11.6kg	33.2kg	
Cocoon Production per 1 ha	114kg	419kg	
Raw silk production	1,759kg		
Production cost	2,500NRs		
Selling price	1,560Rs		Mainly sold to India, Domestic market share is 2-3%
Grade of raw silk	Grade A	4A	Grade of Indian raw silk is 2A-3A
Production of Mulberry nursery	1,800,000		Species are introduced from India

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Annex.3

Organizational Chart of HMG/N for sericulture promotion



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**MINUTES OF MEETING BETWEEN
THE JAPAN INTERNATIONAL COOPERATION AGENCY
AND
THE DEPARTMENT OF AGRICULTURE,
MINISTRY OF AGRICULTURE AND COOPERATIVE
OF
THE GOVERNMENT OF NEPAL
ON
THE TECHNICAL COOPERATION FOR
“PROMOTION OF QUALITY COCOON PRODUCTION AND PROCESSING PROJECT”**


The Japan International Cooperation Agency (hereinafter referred to as “JICA”) exchanged views and opinions with the authorities concerned in the Government of Nepal for the purpose of discussing the detail framework of the requested project entitled “Promotion of Quality Cocoon Production and Processing Project”.

As a result of the above, both parties have reached common understandings concerning the matters in the documents attached hereto.

Kathmandu, November 13th 2006



Mr. Shinji Yoshura
Resident Representative
Japan International Cooperation Agency
Japan



Dr. Deep Bahadur Suwar
Director General
Department of Agriculture
Ministry of Agriculture and Cooperatives
Nepal

ATTACHED DOCUMENT

1. Title of the Project

As the result of series of discussions by both Governments, the title of the Project is confirmed as "Promotion of Quality Cocoon Production and Processing Project".

2. The result of Ex-ante Evaluation and PDM

The development of "Ex-ante Evaluation" and Project Design Matrix (PDM), which was followed by the Preliminary Study conducted in February 2006, is accomplished and the elaborated contents are confirmed by both sides as per attached.

3. The Further Measures to be taken by Both Governments

1) Measures to be taken by the Government of Nepal

1-1 Measures to be done in terms of Project feasibility

With reference to the description on "Important assumption and Pre-condition", the Japanese side requested the Nepalese side to assign the necessary number of governmental staff and assure the continuance of the existing seri-farmer support program during the Project duration.

The Japanese side also requested the Nepalese side 1) to commence an action for cocoon inspection based on genuine quality and 2) to prepare to establish the rules and regulations to create a favorable environment for Private entrepreneurs to enter the Silk industry.

The Nepalese side replied that they will assure the assignment of necessary governmental staff and existing services during the Project period and that they will make utmost efforts for the introduction of a new cocoon inspection system and the establishment of new rules and regulations for promoting Public Private Partnership in the silk industry.

Further, the Nepalese side mentioned that the schedule of procedures to be taken by their side shall be described in the Plan of Operations (POs), which will be developed by both sides in the near future.

1-2 Procedures necessary to commence the Project

The Japanese side mentioned that the Record of Discussions (R/D) is expected to be signed immediately after the signing of this Minutes of Meeting. The Nepalese side mentioned that the R/D shall be circulated among the authorities in Government of Nepal as soon as possible.

2) Measures to be taken by the Government of Japan

After the submission of the "Form A1" for the long-term expert from the Nepalese Government, the Japanese side will take necessary procedures to dispatch the Expert. The Plan of Operations (POs) will be discussed among JICA, Japanese Expert/s, and the authorities of the Nepalese Government soon after the arrival of the long-term expert. The draft POs will be elaborated and finalized within three month after the Project commencement.

4. Phase-out strategy for the sustainability of the Project

The Japanese side mentioned that the project output should be sustained and replicated during and after the project duration based on the ownership of the Nepalese side. In this sense, discussions on a phase-out strategy, even from the beginning, is regarded significant. The Nepalese side understood the importance and suggested the issue be discussed contentiously within the Joint Coordination Committee of the Project.

Attachment:

1. The result of Ex-ante Evaluation (Technical Cooperation Project)
2. The Project Design Matrix



The result of Ex-ante Evaluation (Technical Cooperation Project)

Date: 29th September, 2006
JICA Nepal Office

1. Project Title

Promotion of Quality Cocoon Production and Processing Project

2. Outline of the Project

(1) Project Purpose and description of the Outline :

The Project is targeted at improving the quality of cocoon, which is regarded as the major constraint for sericulture development in Nepal, and establishing a system for providing technical support for producing high quality cocoon. For these purposes, two major approaches are taken: 1) Enhancement of the capacity and linkages among Government's extension workers, Seri-farmers groups and NGOs, and 2) The enhancement of relationship between Entrepreneurs and Seri-farmers groups for promotion of cocoon trade and silk market development under an appropriate quality evaluation system.

(2) Duration : From Nov. 2006 to Oct. 2011 (5 years)

(3) Cost shared by Japanese side(excluding cost for dispatch of Japanese Expert) Around 65 million JPY

(4) Counterpart Organization: Directorate of Industrial Entomology Development (DOIED) , Department of Agriculture, Ministry of Agriculture and Cooperatives

(5) Target Area : Dhading District, 7VDC

Bairini, Salang, Nalang, Kumpur, Sankosh, Bhumisthan, Murle Bhanjyang

(6) Target Groups :

<Direct beneficiaries>

1) Seri-Farmers in the Targeted Area: 400 Households

2) Staff of Directorate of Industrial Entomology Development: 50 Members

3) Resident in the target area; Around 5 thousand

<Indirect beneficiaries>

1) Private entrepreneurs engaged in silk product trade

3. Background of the Project and consistency with JICA's policy or Program

(1) Present situation and issues

In Nepal, around 65% of the employed population is engaged in agriculture, which generates around 40% of Gross National Product (GNP) of the country. Nepalese land is characterized by its high ratio of mountainous area coverage and arable land is almost completely exploited. Therefore, production of high value added crops (like sericulture, fruit cultivation and tea cultivation) with utilization of various geographic and climatic conditions is expected to be promising.

Sericulture in Nepal began around 30 years ago and has a short history compared to those of other countries. The mulberry (for feeding silkworm) plantation area per a household is 1/3, cocoon yield per Ha is 1/4, and production per household is 1/14 of those of Gunma prefecture, an advanced area in sericulture in Japan. These facts indicate the low productivity of sericulture in Nepal. Further, the quality of raw silk made in Nepal is "Grade A" in most cases, where else Indian silk is Grade 2A-3A, Japanese silk is Grade 4A. This shows that the low quality of Nepalese silk does not respond to the expectation/needs of the international market.

The direct reasons of low productivity and quality come from the absence of technician and extension workers to provide appropriate techniques and the absence



of facilities for taking care of young silkworm properly. Consequently, techniques such as temperature and humidity control, disease prevention, mulberry feeding, cocoon mounting, and cocoon selection are not applied properly at the farm level.

The Government of Nepal has been playing a leading role so far on the development of the domestic silk industry by carrying out the introduction and instruction of cocoon production, cocoon procurement, drying and production of raw silk from the procured cocoons. The Ministry of Agriculture and Cooperatives of the Government of Nepal have made several achievements on sericulture development (cf. establishing branch offices in several regions, introducing reeling machines, preserving new varieties of silkworm from Japan, silkworm egg production and distribution, etc.) with support from donor agencies and NGOs. Still, the quality of the produced cocoon remains at a low level and leads to not only the low quality of raw silk, but also a high cost; more than that of the market price. Accordingly, Nepalese raw silk can not compete against Chinese and Indian silk which are also imported to Nepal. Together with the officially fixed pricing system, the raw silk made by the Government is not likely to be sold. This means that the more the Government produces raw silk from low quality cocoon, the more deficit emerges.

Based on the analysis of the current situation, the Technical Cooperation Project is will be implemented at aiming for the increase of income of seri-farmers as its Overall Goal. The Project will carry out extension activities for high quality cocoon production toward extension workers and seri-farmers at the grass-root level and practice cocoon quality management through organizing seri-farmer group activities. The activities are expected to develop the "Quality Cocoon Production" model that is fundamental for income generation.

(2) Development Policies related to the issues by Government of Nepal

In the "10th Plan (2002-2007)", the Government of Nepal set its supreme goal as "Poverty alleviation". Further, "Agricultural Perspective Plan (1995-2015)" and "National Agriculture Policy 2004" aim to i) accelerate growth of agriculture sector through increased productivity; ii) alleviate poverty through growth and increased employment; and iii) diversify horticulture crops through introduction of high value added crops. Sericulture development is considered as a high priority for its consistency with the above policies under poverty alleviation.

(3) Consistency with JICA's policy and country programs

JICA Country Program for Nepal (FY 2003) raises "enhancement of people's standard of living through increase in agriculture production and income" as one of its five priority fields. This Project is in line with the development issue "Agricultural Income Improvement" and consistent with the existing Development Program "Agriculture Income Generation Program".

4. The framework of the Project

The Objectively Verifiable Indicators (OVIs) will be fixed by the Project 8 months after the commencement of the Project.

(1) Outcome of the Project

1) Project Purpose

Quality Cocoon Production in the target/model area is verified through capacity building and strengthening of the linkage among seri-farmers groups, Government technicians, NGOs, Private entrepreneurs and other stakeholders.



[OVIs]

- * The quality of cocoons / measured by i) selection ratio & ii) shell ratio
- * The efficiency of Quality Cocoon Production / measured by i) hatching percentage & yield per box
- * The number of improved technology adopted by seri-farmers compared to the number of imparted technology.
- * The Government technicians' concern/attention toward seri-farmers / measured by the frequency of visit and consultation.
- * The number of cases that Private entrepreneurs procure cocoon based on the result of inspection.

2) Overall Goals

- 1) The model for quality cocoon and silk production are replicated to other parts of Nepal.
- 2) The income of seri-farmers and workers around seri-farmers is increased through the improvement.

[OVIs 1]

- * The number of replication case of the model.
- * The popularity on Nepal indigenous silk in Market.

[OVIs 2]

- * The seri-farmers' status of income-expenditure.
- * The workers' status of income-expenditure.

(2) Outputs and Activities

[Output 1]

The standardized technology for Quality Cocoon Production, Cocoon Quality Inspection and post cocoon harvest is established.

[Activities 1]

- 1-1 To advise for the improvement on mulberry plantation, cultivation and harvesting.
- 1-2 To improve Silkworm rearing and disease prevention technology.
- 1-3 To improve incubation rate and young silkworm rearing.
- 1-4 To practice Cocoon Quality Inspection and cocoon post harvesting activities (Drying, Cleaning and Grading).
- 1-5 Farmers group and other stakeholders to conduct marketing survey on cocoon and silk.
- 1-6 To develop indigenous silk item and practice sales promotion.

[OVIs 1]

- * The number of technical guideline and manuals developed in the Project.
- * The management status of facilities for silkworm rearing house / measured by frequency of usage and existence of usage/maintenance regulation.
- * The number of silkworm disease occurrence and silkworm mortality ratio.
- * The degree of fulfillment of Cocoon Quality Inspection by the Government technicians.
- * Seri-farmers' capability on silk product marketing.
- * The Government technicians' capability on silk product sales promotion.
- * The number of cases which indigenous silk production methodology is applied.

[Output 2]

The capacity of Seri-farmers, Government technicians and NGO staff for promoting Quality Cocoon Production and Cocoon Quality Inspection technology are



strengthened.

【Activities 2】

- 2-1 NGO to organize groups among Seri-Farmers.
- 2-2 To conduct facilitation training and technical training for Government technicians.
- 2-3 To conduct technical training for NGO staff.
- 2-4 To conduct technical Training for Seri-farmers groups.
- 2-5 To conduct "Training for Trainers" for Seri-farmers.

【OVLs 2】

- * Seri-farmers' group membership ratio.
- * The number of improved technology adopted by Government technicians' compared to the number of imparted technology.
- * The Government technicians' capability on facilitating seri-farmers' group.
- * The number of improved technology adopted by NGO staff compared to the number of imparted technology.
- * The number of Training opportunity for seri-farmers group.
- * The number of advanced seri-farmers expected to be technical resource person.

【Output 3】

The linkage among Governmental Agency, NGO and Private Entrepreneur are strengthened.

【Activities 3】

- 3-1 Stakeholders to hold periodical meeting at KTM("Joint Steering Committee") and Field in Dhading("Regional Coordination Committee).
- 3-2 Introduce appropriate monitoring system.

【OVLs 3】

- * The frequency and number of the JCC and RCC.
- * The amount/expense that Entrepreneur traded/paid for procurement of Quality Cocoon from Seri-farmers' groups.
- * The establishment and clarification of TOR for stakeholders (Government technicians, NGO staff and Private entrepreneurs).

(3) Input

(1) Japanese side

1) Dispatch of Expert/s

Long Term Expert: One Person/ Chief Advisor/Sericulture Promotion Policy

Short Term Expert/s: As necessary

2) Procurement of Equipments & Facilities

Community Rearing House & Cocoon Drier as necessary

3) Overseas Training

Third country Training as necessary

4) Local Cost

Assignment of NGO/s and Local Staff, Cost for In-country Training, observation visit and W/S as necessary

(2) Nepalese side (Total)

1) Assignment of PD, PM, and Necessary Government staff/technicians for implementing the Project

2) Preparation for Land and Project office

(Central office at DOIED and Field office at Dhading)



- 3) Running cost for the Project Implementation
- 4) Salary and TA/DA for staff, Water/Electricity/Rental fee, etc

(4) Important Assumptions and Pre-conditions

【Pre-conditions】

- * The necessary Number of Nepalese Counterpart staff are assigned.
- * The farmers in Target Area select Sericulture as desirable cash crop.
- * The Governments' existing services (Supply of i) mulberry sapling, ii) Silkworm Egg and iii) Antiseptics, etc.) continue during the Project period.
- * The insurgent situation in the target area is kept normal.

【Important Assumptions for achieving Outputs】

- * NGO/s who has enough experiences in community Development are assigned for Project Implementation.
- * The Nepalese Counterparts assigned for this Project continue to work for the Project.
- * The Private entrepreneurs are interested and affirmative in the Silk Industry Development.

【Important Assumptions for achieving Project purpose】

- * The Government revises and introduces cocoon inspection system for trading based on a genuine quality.
- * The Government creates the environment for Private entrepreneur to invest on indigenous silk production.

【Important Assumptions for achieving Overall Goals】

- * Government's Policy on Sericulture Promotion continues.
- * Silk Market doesn't get smaller.
- * Governmental and NGO technicians/staff concerned to Project Implementation continue the support to Seri-farmers.

5. Result of Ex-ante evaluation by five evaluation criteria

(1) Relevancy

- The Project can contribute to "Poverty alleviation", which is the Nepal Government's Supreme goal. The promotion of high value added crop is in line with the Nepalese Agriculture Policy. Thus, the Project is relevant with the development needs of Nepal.
- The Project is consistent with the " Agriculture Income Generation Program " of the JICA Country Program for Nepal (FY 2003).
- In the past, several attempts on sericulture development by donor agencies and NGOs have been applied(cf. Dispatch of volunteer/expert in reeling by KOICA, community rearing center (CRC) facility construction by UNDP, etc). However, the quality of cocoon has been overlooked so far. The Project could take comprehensive approach for solving various issues by complementing the missing factor in the past development program as well as utilizing the outputs by JICA's past cooperations.

(2) Effectiveness

- The output1 "The standardized technology for Quality Cocoon Production, Cocoon Quality Inspection and post cocoon harvest is established." is regarded as the procedure of "establishment of appropriate methodology" which will become the basis of achieving the project purpose.
- The output2 "The capacity of Seri-farmers, Government technicians and NGO staff



for promoting Quality Cocoon Production and Cocoon Quality Inspection technology are strengthened.” is regarded as the procedure of “dissemination of technology and capacity building”, which is essential for assuring the reliability and sustainability of the developed model.

- The output3 “The linkage among Governmental Agency, NGO and Private Entrepreneur are strengthened.” is regarded as the procedure of “Coordination” among stakeholders with a view to sustain the silk industry as a whole even after the Project duration.
- The Government of Nepal is requested to “revises and introduce a cocoon inspection system for trading based on genuine quality” and “creates the environment for Private entrepreneur to invest on indigenous silk production” as the important assumptions for achieving the project purpose. Necessary measures are expected to be taken by the ownership of the Government of Nepal by receiving consultation from Japanese long term expert, thus it is presumed that this assumption is not a risk factor for achieving the project purpose.

(3) Efficiency

- For the group formulation of seri-farmers, Nepalese NGO/s who has enough capability and experience in rural development will play the main role. By this modality, the cost expenditure for technical service delivery is expected to be efficient. At the same time, enhancing NGO’ s capability will enable them to engage in sericulture development (both in target area and other potential areas) with a strong linkage with the market in the future.
- On the implementation of the Project, the outputs gained by past cooperations and local (Nepalese and Japanese) expert/s and staff will be fully utilized. This will realize the cost efficiency as well as the effectiveness.
- In case facility construction such as community rearing center (CRC) and cocoon drier arises, local materials and contractor/constructor will be utilized for maintainance, cost efficiency and sustainability.

(4) Impact

- By this Project, Seri-farmers’ income is expected to increase through quality cocoon production. It will also create job opportunities for those involved in the silk industry (especially for women in rural areas whose employment opportunities are limited) and provide more chances for generating income.
- As the target area of the Project is located along with the highway and accessible for the stakeholders, the output of the Project is expected to spread to other potential area. Organizing field observation might be effective in this term.

(5) Sustainability

<In policy and institutional aspect>

- The Japanese expert will make necessary advice on policy to help the Government of Nepal take necessary measures (as described in (2) Effectiveness, 4th article). Coping with these measures, the silk industry is expected to become more feasible in the future.
- The existing support program such as mulberry sapling, silkworm egg production/distribution, and provision of antiseptics by the Government is expected to continue because the policy for promoting high value added crops is likely to last and necessary budget allocation is expected respectively.

<In financial aspect>

- The Project will be implemented through collaboration with Nepalese NGO/s. The NGO/s could be able to remain in the field as the service provider if the NGO’ s activity cost share system by the beneficiaries is formulated within the project duration.



<In technical aspect>

- It is expected that a basis to accept and sustain the appropriate technology for quality cocoon production will be founded by grouping the seri-farmers. Further, the facilities such as CRC and cocoon drier to be constructed during the Project is planned to be handed over to the local community so that the beneficiaries will manage and maintain properly even after the project duration.

6. Notes regarding consideration for Poverty alleviation, Gender and Environment

Sericulture is said to be a labor-intensive business. Due to its high potentiality to create employment that will contribute to poverty alleviation, the Government of Nepal has paid attention to the promotion and extension of sericulture. Among all, it will provide the job opportunity to women living in the rural area by production of cocoon and silk handicrafts. In this term, sericulture can promote the women's participation in social activities.

At the same time, loss of soil fertility by erosion and landslide causes the degradation of livelihood of rural people in Nepal. The mulberry tree can root and grow rapidly and is stiff compared to other species, so mulberry plantation for sericulture can contribute to soil conservation and carbon fix in the arable land. Therefore, sericulture could give a positive impact on environment in the field.

7. The feedbacks from the lessons learnt in the past project

In the past, JICA implemented the mini-project-type technical cooperation "Sericulture Promotion in the kingdom of Nepal" and a Follow-Up (F/U) program. UNDP also implemented the "Sericulture for Rural Development Program (SRDP)". These programs have contributed to the development of sericulture in Nepal, such as the introduction of new silkworm species, establishment of mulberry sapling system, etc. However, the Nepal Government's efforts in establishing and disseminating appropriate technologies has been weak so far resulting in the limited Governmental services (such as provision of resources) for supporting seri-farmers. Besides, the Government's initiative to develop the silk market along with the private sector has also been weak and could not afford to adopt the principal of a market mechanism.

In this project, the Project will be based on the outputs of the past development activities. More to say, it will emphasize on the involvement of private sector and NGO/s as a major stakeholder as well as the confederacy of seri-farmers. Thus, this Project has a significance of fostering the foundation of sericulture in Nepal so that it will sustain as one of the suitable industry.

8. Schedule for evaluation activities in the future

- Mid-Term Evaluation April, 2008
- Final Evaluation April, 2011



Project Design Matrix "Promotion of Quality Cocoon Production and Processing Project"

Target Area : Dhading District, 7WDC/ Bairini, Salang, Malang, Kumpur, Sankosh, ... than, Murla Bhanjyang
 Duration : From Nov. 2006 / To Oct. 2011

Target Group 1) Seri-Farmers in the Targeted Area : 400 H.H
 2) Staff of Directorate of Industrial Entomology Development : 50 Members
 3) Resident in the target area : Around 5 thousand

As of 29th, September, 2006

Narrative Summary	Objectively Verifiable Indicator	Means of Verification	Important Assumption
<p>(Overall Goal) The model for quality cocoon and silk production are replicated to other parts of Nepal. The income of seri-farmers and workers around seri-farmers is increased through the improvement.</p> <p>(Project Purpose) The quality Cocoon Production in the target/model area is verified through capacity building and strengthening of the linkage among seri-farmers groups, Government technicians, NGOs, Private entrepreneurs and other stakeholders.</p>	<p>Objectively Verifiable Indicator</p> <ul style="list-style-type: none"> * The number of replication case of the model. * The popularity on Nepal indigenous silk in Market. * The workers' status of income-expenditure. * The workers' status of income-expenditure. * The quality of cocoons / measured by 1) selection ratio & 2) shell ratio per box * The efficiency of Quality Cocoon Production / measured by 1) hatching percentage & yield * The number of improved technology adopted by seri-farmers compared to the number of improved technology. * The government technicians' concern/attention toward seri-farmers / measured by the frequency of visit and consultation. * The number of cases that Private entrepreneurs procure cocoon based on the result of inspection. 	<p>Means of Verification</p> <ul style="list-style-type: none"> * Budget of MOAC/DOA * Statistic survey data * Farmer's sample survey * Project Monitoring Report * Activity Record book of JI/JTA * Activity Record book of Seri-Farmers' Group * Farmer's sample survey 	<p>Important Assumption</p> <p>N/A</p> <ul style="list-style-type: none"> * Government's Policy on Sericulture Promotion continues. * STIK Market doesn't get smaller. * Governmental and NGO technicians/staff concerned to Project Implementation continue the support to Seri-Farmers. * STIK price doesn't take great fall.
<p>(Output) 1. The standardized technology for Quality Cocoon Production, Cocoon Quality Inspection and post cocoon harvest is established.</p>	<ul style="list-style-type: none"> * The management of technical guideline and manuals developed in the Project. * The management status of facilities for silkworm rearing house / measured by frequency of usage and existence of usage/maintenance regulation. * The number of silkworm disease occurrence and silkworm mortality ratio. * The degree of fulfillment of Cocoon Quality Inspection by the Government technicians. * Seri-farmers' capability on silk product marketing. * The government technicians' capability on silk product sales promotion. * The number of cases which indigenous silk production methodology is applied. 	<ul style="list-style-type: none"> * Project Monitoring Report * Activity Record book of JI/JTA * Activity Record book of Seri-Farmers' Group * Farmer's sample survey * Technical Manual 	<ul style="list-style-type: none"> * The Government revises and introduces cocoon inspection system for trading based on a genuine quality. * The Government creates the environment for Private entrepreneur to invest on indigenous silk production.
<p>2. The capacity of Seri-farmers, Government technicians and NGO staff for promoting Quality Cocoon Production and Cocoon Quality Inspection technology are strengthened.</p>	<ul style="list-style-type: none"> * Seri-farmers' group membership ratio. * The number of improved technology adopted by Government technicians' compared to the number of imparted technology. * The government technicians' capability on facilitating seri-farmers' group. * The number of improved technology adopted by NGO staff compared to the number of imparted technology. * The number of training opportunity for seri-farmers group. * The number of advanced seri-farmers expected to be technical resource person. 	<ul style="list-style-type: none"> * Project Monitoring Report * Activity Record book of JI/JTA * Activity Record book of Seri-Farmers' Group * Farmer's sample survey 	<ul style="list-style-type: none"> * The Government revises and introduces cocoon inspection system for trading based on a genuine quality. * The Government creates the environment for Private entrepreneur to invest on indigenous silk production.
<p>3. The linkage among Governmental Agency, NGO and Private Entrepreneur are strengthened.</p>	<ul style="list-style-type: none"> * The frequency and number of the JCC and ROC. * The amount/expense that Entrepreneur traded/paid for procurement of Quality Cocoon from Seri-farmers' groups. * The establishment and clarification of TOR for stakeholders (Government technicians, NGO staff and Private entrepreneurs). 	<ul style="list-style-type: none"> * Project Monitoring Report * The Government's Policy for ppp in Sericulture * Private Entrepreneur's sample survey * Farmer's sample survey 	<ul style="list-style-type: none"> * The Government revises and introduces cocoon inspection system for trading based on a genuine quality. * The Government creates the environment for Private entrepreneur to invest on indigenous silk production.
<p>(Activity 1) 1-1 To advise for the improvement on mulberry plantation, cultivation and harvesting. 1-2 To improve Silkworm rearing and disease prevention technology. 1-3 To improve incubation rate and young silkworm rearing 1-4 To practice Cocoon Quality Inspection and cocoon post harvesting activities (Drying, Cleaning and Grading). 1-5 Farmers group and other stakeholders to conduct marketing survey on cocoon and silk. 1-6 To develop indigenous silk item and practice sales promotion.</p>	<p>(Input from Japanese side)</p> <ul style="list-style-type: none"> 1) Dispatch of Experts <p>Long Term: One Person/ Chief Advisor/Sericulture Promotion Policy</p> <p>Short Term: As necessary</p> <ul style="list-style-type: none"> 2) Procurement of Equipments & Facilities Community Rearing House & Cocoon Drier as necessary 3) Training Third country Training as necessary 4) Local Cost Assignment of NGO/s and Local Staff Cost for In-country Training, observation visit and W/S as necessary 	<p>(Input from Nepalese side)</p> <ul style="list-style-type: none"> 1) Assignment of PD, PH, and Necessary government staff/technicians for implementing the Project 2) Preparation for Land and Project office (Central office at DOED and Field office at Dhading) 3) Running cost for the Project Implementation 4) Salary and TA/DA for staff, Water/Electricity/Rental fee, etc 	<ul style="list-style-type: none"> * NGO/s who has enough experiences in Community Development are assigned for Project Implementation. * The Nepalese counterparts assigned for this Project continue to work for the Project. * The Private entrepreneurs are interested and affirmative in the STIK industry Development.
<p>(Activity 2) 2-1 NGO to organize groups among Seri-Farmers. 2-2 To conduct facilitation training and technical training for Government technicians. 2-3 To conduct technical training for NGO staff. 2-4 To conduct technical Training for Seri-Farmers groups. 2-5 To conduct "Training for Trainers" for Seri-Farmers.</p> <p>(Activity 3) 3-1 Stakeholders to hold periodical meeting at KTM ("Joint Steering Committee") and Field in Dhading ("Regional Coordination Committee"). 3-2 Develop appropriate monitoring system.</p>	<p>Pre-Conditions</p> <ul style="list-style-type: none"> * The necessary Number of Nepalese counterpart staff are assigned. * The farmers in target Area select Sericulture as desirable cash crop. * The governments' existing services (Supply of 1) mulberry sapling, 1) Silkworm Egg and 1) Antiseptics, etc.) continue during the Project period. * The insurgent situation in the target area is kept normal. 	<p>Pre-Conditions</p> <ul style="list-style-type: none"> * The necessary Number of Nepalese counterpart staff are assigned. * The farmers in target Area select Sericulture as desirable cash crop. * The governments' existing services (Supply of 1) mulberry sapling, 1) Silkworm Egg and 1) Antiseptics, etc.) continue during the Project period. * The insurgent situation in the target area is kept normal. 	<p>Pre-Conditions</p> <ul style="list-style-type: none"> * The necessary Number of Nepalese counterpart staff are assigned. * The farmers in target Area select Sericulture as desirable cash crop. * The governments' existing services (Supply of 1) mulberry sapling, 1) Silkworm Egg and 1) Antiseptics, etc.) continue during the Project period. * The insurgent situation in the target area is kept normal.

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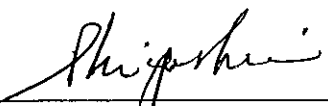
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**RECORD OF DISCUSSIONS
BETWEEN THE JAPAN INTERNATIONAL COOPERATION AGENCY
AND
THE AUTHORITIES OF THE GOVERNMENT OF NEPAL
ON
JAPANESE TECHNICAL COOPERATION
FOR THE PROJECT ON PROMOTION OF QUALITY COCOON PRODUCTION
AND PROCESSING PROJECT IN NEPAL**


With regard to the minutes of meeting between Japan International Cooperation Agency (hereinafter referred as "JICA") and the Government of Nepal dated on 13th November 2006, JICA had a series of discussions through the Resident Representative of JICA in Nepal with the Nepalese authorities concerned with respect to desirable measures to be taken by JICA and the Government of Nepal for the successful implementation of the above-mentioned Project.

As a result of the discussions, and in accordance with the provisions of the Agreement on Technical Cooperation between the Government of Japan and the Government of Nepal, signed in Kathmandu on 03rd September, 2003 (hereinafter referred to as " the Agreement"), JICA and Nepalese authorities concerned agreed on the matters referred to in the document attached hereto.

Kathmandu 30th, November 2006



Shinji YOSHURA
Resident Representative
Japan International Cooperation Agency
Nepal Office



Tek Bahadur THAPA
Joint Secretary
Ministry of Agriculture & Cooperatives
The Government of Nepal

THE ATTACHED DOCUMENT

I. COOPERATION BETWEEN JICA AND THE GOVERNMENT OF NEPAL

1. The Government of Nepal will implement the Promotion of Quality Cocoon Production and Processing Project (hereinafter referred to as “the Project”) in cooperation with JICA.
2. The Project will be implemented in accordance with the Master Plan (Annex I-1) and Project Design Matrix (Annex I-2).

II. MEASURES TO BE TAKEN BY JICA

In accordance with the laws and regulations in force in Japan and the provisions of Article III of the Agreement, JICA, as the executing agency for technical cooperation by the Government of Japan, will take, at its own expense, the following measures according to the normal procedures of its technical cooperation scheme.

1. DISPATCH OF JAPANESE EXPERTS

JICA will provide the services of the Japanese experts as listed in Annex II. The provision of Article III (b) of the Agreement will be applied to the above-mentioned experts.

2. PROVISION OF MACHINERY AND EQUIPMENT

JICA will provide such machinery, equipment and other materials (hereinafter referred to as “the Equipment”) necessary for the implementation of the Project as listed in Annex III. The provision of Article III (e) of the Agreement will be applied to the Equipment.

3. TRAINING OF NEPALESE PERSONNEL IN JAPAN

JICA will receive the Nepalese personnel connected with the Project for technical training in Japan.

III. MEASURES TO BE TAKEN BY THE GOVERNMENT OF NEPAL

1. The Government of Nepal will take necessary measures to ensure that the self-reliant operation of the Project will be sustained during and after the period of the Japanese technical cooperation, through full and active involvement in the Project by all related authorities, beneficiary groups and institutions.
2. The Government of Nepal will ensure that the technologies and knowledge acquired by the



Nepalese nationals as a result of the Japanese technical cooperation will contribute to the economic and social development of Nepal.

3. In accordance with the provisions of Article VI of the Agreement, the Government of Nepal will grant in Nepal privileges, exemptions and benefits to the Japanese experts referred to in II-1 above and their families.
4. In accordance with the provisions of Article VIII of the Agreement, the Government of Nepal will take the necessary measures to receive and use the Equipment provided by JICA under II-2 above and equipment, machinery and materials carried in by the Japanese experts referred to in II-1 above.
5. The Government of Nepal will take necessary measures to ensure that the knowledge and experience acquired by the Nepalese personnel from technical training in Japan will be utilized effectively in the implementation of the Project.
6. In accordance with the provision of Article V (b) of the Agreement, the Government of Nepal will provide the services of Nepalese counterpart personnel and administrative personnel as listed in Annex IV.
7. In accordance with the provision of Article V (a) of the Agreement, the Government of Nepal will provide the buildings and facilities as listed in Annex V.
8. In accordance with the laws and regulations in force in Nepal, the Government of Nepal will take necessary measures to supply or replace at its own expense machinery, equipment, instruments, vehicles, tools, spare parts and any other materials necessary for the implementation of the Project other than the Equipment provided by JICA under II-2 above.
9. In accordance with the laws and regulations in force in Nepal, the Government of Nepal will take necessary measures to meet the running expenses necessary for the implementation of the Project.

IV. ADMINISTRATION OF THE PROJECT

1. The Director, Directorate of Industrial Entomology Development, Department of Agriculture, Ministry of Agriculture and Cooperatives, as the Project Director, will bear overall responsibility for the administration and implementation of the Project.
2. The Senior Officer, Directorate of Industrial Entomology Development, Department of



Agriculture, Ministry of Agriculture and Cooperatives, as the Project Manager, will be responsible for the managerial and technical matters of the Project.

3. The Japanese Team Leader will provide necessary recommendations and advice to the Project Director and the Project Manager on any matters pertaining to the implementation of the Project.
4. The Japanese experts will give necessary technical guidance and advice to Nepalese counterpart personnel on technical matters pertaining to the implementation of the Project.
5. For the effective and successful implementation of technical cooperation for the Project, a Joint Coordinating Committee will be established, whose functions and composition are described in Annex VI.

V. JOINT EVALUATION

Evaluation of the Project will be conducted jointly by JICA and the Nepalese authorities concerned, at the middle and during the last six months of the cooperation term, in order to examine the level of achievement.

VI. CLAIMS AGAINST JAPANESE EXPERTS

In accordance with the provision of Article VII of the Agreement, the Government of Nepal undertakes to bear claims, if any arises, against the Japanese experts engaged in technical cooperation for the Project resulting from, occurring in the course of, or otherwise connected with the discharge of their official functions in Nepal except for those arising from the willful misconduct or gross negligence of the Japanese experts.

VII. MUTUAL CONSULTATION

There will be mutual consultation between JICA and the Government of Nepal on any major issues arising from, or in connection with this Attached Document.

VIII. MEASURES TO PROMOTE UNDERSTANDING OF AND SUPPORT FOR THE PROJECT



For the purpose of promoting support for the Project among the people of Nepal, the Government of Nepal will take appropriate measures to make the Project widely known to the people of Nepal.

IX. TERM OF COOPERATION

The duration of the technical cooperation for the Project under this Attached Document will be 5(five) years from December 1st, 2006.

- ANNEX I-1 MASTER PLAN
- () ANNEX I-2 PROJECT DESIGN MATRIX (PDM)
- ANNEX II LIST OF JAPANESE EXPERTS
- ANNEX III LIST OF MACHINERY AND EQUIPMENT
- ANNEX IV LIST OF NEPALESE COUNTERPART AND ADMINISTRATIVE PERSONNEL
- ANNEX V LIST OF BUILDINGS AND FACILITIES
- ANNEX VI JOINT COORDINATING COMMITTEE



MASTER PLAN**1. Overall Goal**

- 1) The model for quality cocoon and silk production are replicated to other parts of Nepal.
- 2) The income of seri-farmers and workers around seri-farmers is increased through the improvement.

2. Project Purpose

Quality Cocoon Production in the target/model area is verified through capacity building and strengthening of the linkage among seri-farmers groups, Government technicians, NGOs, Private entrepreneurs and other stakeholders.

3. Project Outputs

- 1) The standardized technology for Quality Cocoon Production, Cocoon Quality Inspection and post cocoon harvest is established.
- 2) The capacity of Seri-farmers, Government technicians and NGO staff for promoting Quality Cocoon Production and Cocoon Quality Inspection technology are strengthened.
- 3) The linkage among Governmental Agency, NGO and Private Entrepreneur are strengthened.

4. Activities

- 1-1 To advise for the improvement on mulberry plantation, cultivation and harvesting.
 - 1-2 To improve Silkworm rearing and disease prevention technology.
 - 1-3 To improve incubation rate and young silkworm rearing.
 - 1-4 To practice Cocoon Quality Inspection and cocoon post harvesting activities (Drying, Cleaning and Grading).
 - 1-5 Farmers group and other stakeholders to conduct marketing survey on cocoon and silk.
 - 1-6 To develop indigenous silk item and practice sales promotion.
-
- 2-1 NGO to organize groups among Seri-Farmers.
 - 2-2 To conduct facilitation training and technical training for Government technicians.
 - 2-3 To conduct technical training for NGO staff.
 - 2-4 To conduct technical Training for Seri-farmers groups.
 - 2-5 To conduct "Training for Trainers" for Seri-farmers.



3-1 Stakeholders to hold periodical meeting at KTM("Joint Steering Committee") and Field in Dhading("Regional Coordination Committee).

3-2 Introduce appropriate monitoring system.

* The description on Target area, Target group and Objectively verifiable indicator is mentioned in Project Design Matrix (ANEX I-2)



ANNEX 1-2 Project Design Matrix "Promotion of Quality Cocoon Production and Processing Project"

Target Area : Dhading District, 7400/ Bairini, Salang, Na lang, Kumpur, Sankosh, F... than, Murie Bhanjyang.
 Duration : From Nov. 2006 / To Oct. 2011
 5 Years

Target Group
 1) Seri-Farmers in the Targeted Area : 400 H.H
 2) Staff of Directorate of Industrial Entomology Development : 50 Members
 3) Resident in the targeted area : Around 5 thousand

As of 23th, September, 2006

Narrative Summary	Objectively Verifiable Indicator	Means of Verification	Important Assumption
<p>[Overall Goal] The model for quality cocoon and silk production are replicated to other parts of Nepal. The income of seri-farmers and workers around seri-farmers is increased through the project intervention.</p> <p>[Project Purpose] The Quality Cocoon Production in the target/model area is verified through capacity building and strengthening of the linkage among seri-farmers groups, Government technicians, NGO, Private entrepreneurs and other stakeholders.</p> <p>[Output] 1. The standardized technology for Quality Cocoon Production, Cocoon Quality Inspection and post cocoon harvest is established.</p> <p>2. The capacity of Seri-farmers, Government technicians and NGO staff for promoting Quality Cocoon Production and Cocoon Quality Inspection technology are strengthened.</p> <p>3. The linkage among Government Agency, NGO and Private Entrepreneur are strengthened.</p> <p>[Activity 1] 1-1 To advise for the improvement on mulberry plantation, cultivation and harvesting. 1-2 To improve Silkworm rearing and disease prevention technology. 1-3 To improve incubation rate and young silkworm rearing 1-4 To practice Cocoon Quality Inspection and cocoon post harvesting activities (Drying, Cleaning and Grading). 1-5 Farmers group and other stakeholders to conduct marketing survey on cocoon and silk. 1-6 To develop indigenous silk item and practice sales promotion. [Activity 2] 2-1 NGO to organize groups among Seri-Farmers. 2-2 To conduct facilitation training and technical training for Government technicians. 2-3 To conduct technical training for NGO staff. 2-4 To conduct technical training for Seri-Farmers groups. 2-5 To conduct Training for Trainers for Seri-Farmers. [Activity 3] 3-1 Stakeholders to hold periodical meeting at KVIC (Joint Steering Committee) and Field in Dhading (Regional Coordination Committee). 3-2 Develop appropriate monitoring system.</p>	<p>[Objective Verifiable Indicator] The number of replication case of the model. The popularity on Nepal indigenous silk in Market. The seri-farmers' status of income-expenditure. The workers' status of income-expenditure. The quality of cocoons / measured by i) selection ratio & ii) shell ratio The efficiency of Quality Cocoon Production / measured by i) hatching percentage & yield per box The number of improved technology adopted by seri-farmers compared to the number of imparted technology. The Government technicians' concern/attention toward seri-farmers / measured by the frequency of visit and consultation. The number of cases that Private entrepreneurs procure cocoon based on the result of inspection. The number of technical guideline and manuals developed in the Project. The management of facilities for silkworm rearing house / measured by frequency of usage and existence of face/maintenance regulation. The degree of fulfillment of Government technicians' inspection by the Government technicians. Seri-farmers' capability on silk product marketing. The Government technicians' capability on silk product sales promotion. The number of cases which indigenous silk production methodology is applied. Seri-farmers' group membership ratio. The number of improved technology adopted by Government technicians' compared to the number of imparted technology. The Government technicians' capability on facilitating seri-farmers' group. The number of improved technology adopted by NGO staff compared to the number of imparted technology. The number of training opportunity for seri-farmers group. The number of advanced seri-farmers expected to be technical resources person. The frequency and number of the JOC and ROC. The amount/expense that Entrepreneur traded/aid for procurement of Quality Cocoon from Seri-farmers' groups. The establishment and clarification of TOR for stakeholders (Government technicians, NGO staff and Private entrepreneurs).</p> <p>[Input from Japanese side] 1) Dispatch of Experts Long Term: One Person/ Chief Advisor/Sericulture Promotion Policy Short Term: As necessary 2) Procurement of Equipments & Facilities Community Rearing House & Cocoon Drier as necessary 3) Training Third country Training as necessary 4) Local Cost Assignment of NGO/s and Local Staff Cost for In-country Training, observation visit and W/S as necessary</p>	<p>[Budget of JICA/ODA] Statistical survey data Farmer's sample survey Project Monitoring Report Activity Record book of JICA/ODA Activity Record book of Seri-Farmers' Group Farmer's sample survey Project Monitoring Report Activity Record book of JICA/ODA Activity Record book of Seri-Farmers' Group Farmer's sample survey Technical Manual Project Monitoring Report Activity Record book of JICA/ODA Activity Record book of Seri-Farmers' Group Farmer's sample survey Project Monitoring Report Activity Record book of JICA/ODA Activity Record book of Seri-Farmers' Group Farmer's sample survey Project Monitoring Report Activity Record book of JICA/ODA Activity Record book of Seri-Farmers' Group Farmer's sample survey Project Monitoring Report Activity Record book of JICA/ODA Activity Record book of Seri-Farmers' Group Farmer's sample survey</p>	<p>N/A</p> <p>Government's Policy on Sericulture Promotion continues. Silk Market doesn't get smaller. Governmental and NGO technicians/staff concerned to Project Implementation continue the support to Seri-farmers. Silk price doesn't take great fall.</p> <p>The Government revises and introduces cocoon inspection system for grading based on genuine quality. The Government creates the environment for Private entrepreneur to invest on indigenous silk production.</p> <p>NGO/s who has enough experiences in Project Implementation are assigned for Project Implementation. The Nepalless Counterparts assigned for this Project continue to work for the Project and affirmative in the Silk Industry Development.</p> <p>The necessary Number of Nepalless Counterpart staff are assigned. The farmers in Target Area select Sericulture as desirable cash crop. The Government's existing services (Supply of mulberry sapling, 1) Silkworm Egg and 2) Antibiotics, etc.) continue during the Project period. The insurmount situation in the target area is kept normal.</p>

LIST OF JAPANESE EXPERTS

1. Long-term Expert

Chief Advisor/Sericulture Promotion Policy

2. Short-term Expert and Third Country Expert

Short-term expert/s and Third country expert/s will be dispatched when necessary for the smooth and effective implementation of the Project.



LIST OF MACHINERY AND EQUIPMENT

1. The Equipment necessary for implementing the activities described in ANNEX I will be provided.
2. Other materials and Equipments mutually agreed upon as necessary will be provided.

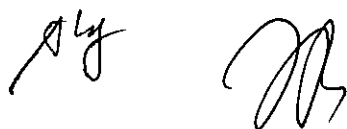
Note:

Contents, specifications and quantity of the above-mentioned Equipment/s will be decided through mutual consultation within an allocated budget of the Japanese fiscal year.

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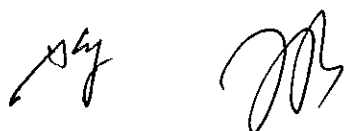
LIST OF NEPALESE COUNTERPARTS AND ADMINISTRATIVE PERSONNEL

1. The Project Director will bear overall responsibility for the Project.
2. The Project Manager will be responsible for the managerial and technical matters of the Project.
3. The chief of Parental Stock Seed Cocoon Resource Center (PSS-CRC) in Dhunibesi, assigned as the Project Coordinator, will be appointed as the Field Level Coordinator and has the responsibility to organize the Field Implementation Committee(FIC) to monitor the Project implementation. The detailed function of the FIC will be discussed at JCC immediately after the commencement of the Project.
4. The necessary number of staff at Sericulture Development Division in Khopasi will be assigned to the Project for providing technical and material support to the Project activities.
5. The necessary number of extension staff (JT/JTAs) assigned at Parental Stock Seed Cocoon Resource Center(PSS-CRC) in Dhunibesi will be involved in various training program and implementing the field activities of the Project.



LIST OF LAND, BUILDINGS AND FACILITIES

1. Land, buildings and facilities necessary for the implementation of the Project
2. Office space and necessary facilities including electricity and communication facilities for the Japanese experts at Directorate of Industrial Entomology Development (DOIED), Department of Agriculture, Ministry of Agriculture and Cooperatives in Kathmandu.
3. Office space and necessary facilities including electricity and communication facilities for the field staff in Dhading district for smooth and effective implementation of the Project activities at the field level.
4. Other land, buildings and facilities necessary for the implementation of the Project as mutually agreed upon.



JOINT COORDINATING COMMITTEE

The Joint Coordinating Committee will meet at least once every 6(six) months and whenever necessity arises.

1. Function

- (1) To formulate the Annual Work Plan of the Project in line with the Plan of Operations which is going to be formulated based on the Minutes of Meeting, October 19th, 2006
- (2) To review the overall progress of the technical cooperation activities in line with the description in ANNEX I (4) as well as achievements under the Annual Work Plan of the Project.
- (3) To discuss those measures taken by the Project.
 - i) Dispatch of short-term Expert/s and Third country Expert/s
 - ii) Third country Training
 - iii) Installment of the local facility
 - iv) Utilization of machinery and equipment
 - v) Description on Terms of References of the Local NGO in charge of social mobilizing activities in the field
- (4) To review those measures taken by the Government of Nepal.
 - i) Allocation of necessary budget (including local cost expenditures)
 - ii) Allocation of necessary counterpart personnel
 - iii) Necessary measures to be taken by the Government of Nepal for the acceleration of Public Private Partnership in the silk industry based on the description in the Minutes of Meeting, October 19th, 2006
- (5) To review and exchange views on major issues arising from or in connection with the Project.
- (6) To provide the Project with necessary advice.

2. Committee Composition

The Joint Coordinating Committee will be composed of the following members:

(1) Chairperson:

Director General of the Department of Agriculture, Ministry of Agriculture and Cooperatives

(2) Member Secretary

Project Manager, Director of Directorate of Industrial Entomology Development, Department of Agriculture, Ministry of Agriculture and Cooperatives

(3) Members

i) Nepalese side:

- Deputy Director General in charge of Planning, the Department of Agriculture, Ministry of Agriculture and Cooperatives
- Deputy Director General in charge of Technology Transfer and Coordination, Department of Agriculture, Ministry of Agriculture and Cooperatives
- Project Coordinator,

- Representatives of Planning Division, Ministry of Agriculture and Cooperatives
- Other personnel concerned with the Project

ii) Japanese side:

- Chief Advisor/Sericulture Promotion Policy
- Other Japanese Expert/s and staff nominated by the Chief Advisor/Sericulture Promotion Policy
- Resident Representative, JICA Nepal Office
- Assistant Resident Representative, JICA Nepal Office
- Program officer in charge, JICA Nepal Office
- Personnel to be dispatched by JICA as required

(4) Observer/s:

Official/s of the Embassy of Japan

Note: Persons who are nominated by the chairperson may also attend the Joint Coordinating Committee meeting.





NARMA

NARMA Consultancy Pvt Ltd



Project Document

Promotion of Quality Cocoon Production and Processing Project in Nepal



July, 2006

Submitted to

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Project Document

Promotion of Quality Cocoon Production and Processing Project in Nepal

List of Abbreviations

ADB/N	Agricultural Development Bank of Nepal
AEC	Agro enterprise Centre
APP	Agriculture Perspective Plan
CRC	Community rearing Centre
DOA	Department of Agriculture
DOIED	Directorate of Industrial Entomology Development
FC	Field Coordinator
FE	Farmer Expert
FIC	Field Implementation Committee
FO	Field Office
JICA	Japan International Cooperation Agency
JSC	Joint Steering Committee
JT	Junior Technician
JTA	Junior Technical Assistant
KoICA	Korean International Cooperation Agency
LSDP	Long Term Sericulture Development Plan
MOAC	Ministry of Agriculture and Cooperatives
NGO	Non-Government Organization
SDD	Sericulture Development Division
PC	Project Coordinator
PD	Project Director
PDM	Project Design Matrix
PSS-CRC	Parental Stock Seed Cocoon Resource Centre, Dhunibeshi
SDP	Sericulture Development Program
SGs	Seri-farmers' groups
SNMP	Silk Network Model Project
SRDP	Sericulture for Rural Development Program
TOT	Training of Trainers
UNDP	United Nations Development Program
VDC	Village Development Committee

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Executive Summary

The project document for **Promotion of Quality Cocoon Production and Processing Project** in Nepal has been designed as per the Minutes of Meeting signed between the Department of Agriculture of the Government of Nepal and Japan International Cooperation Agency (JICA) Nepal on February 22, 2006. The overall goal of the project is to develop a model for quality Cocoon Production and post harvest activities which could be replicated. This, in turn, would increase the net income of sericiculturists.

Aimed at testing and verifying technologies for quality of cocoon production and to focus on the post harvest activities of cocoon, the project will be implemented for a period of 5 years from July 2006 to June 2011 in Dhading district of Nepal which has a high potentiality of the sericulture development. The project activities are focused on the three outputs of the project as given below:

- (a) the standardized technology for quality Cocoon Production and Post Cocoon harvest and processing are established
- (b) The staff's capacity for promoting the improved technology and post cocoon know-how are strengthened
- (c) The linkage among Government, NGO and private sector are strengthened

The project will be implemented in 7 selected village development committees of Dhading district and will directly benefit approximately 400 households. Central to the project is to make Dhading district known as silk district of Nepal.

The project also envisaged to address problems faced by private traders and entrepreneurs through market study and action research. The number of direct beneficiaries is kept small since the project is to become a model and readily replicable in other potential areas. The project intends to bring out an "U-Turn" in the present system of cocoon procurement and the government role such that by the end of the project period, the procurement of cocoon will be controlled by the market and not by the government or through its subsidiaries like the present arrangement.

The government of Nepal is expected to develop enabling policy environment for encouraging private sector and sericiculturists in the sericulture development. The project will enable the government to play facilitating role to promote sericulture development through the involvement of private sector and active involvement of the sericiculturists, and the market to regulate quality of the cocoons. For this to happen, the present project has given a greater emphasis to enhancing farmers' capacities to produce the quality cocoons and also that of the technical staff (professionals and grassroots) in order that the latter could advise and train farmers more confidently, reliably and timely.

The executing agency for the project is the Department of Agriculture. The counterpart organization for the project is the Directorate of Industrial Entomology Development. The field office will be established at Parental Seed Stock-Cocoon Resource Centre Dhunibeshi. The project will use the services of competent sericulture experienced non-government organizations for social mobilization and the final output of the social mobilization activities will be the evolution of a sericiculturists' cooperative which, after the end of the project, will take on responsibilities for spreading of sericulture, silk production among rural smallholders and act as a facilitator or linkages between the producer and the government during the pre-cocoon stage or up to the harvesting stage and later act as a negotiator between the producers and private traders/ entrepreneur during the marketing or selling of fresh cocoons.

This document has been prepared by NARMA Consultancy Pvt. Limited Baneshor, Kathmandu following the discussions with the concerned stakeholders in the Department of Agriculture, Directorate of industrial Entomology Development, visit to the Dhunibeshi farm, Sericulture Network Model Project Staff, and observation of field facilities and participatory interactions with the sericiculturists in Dhading district.

1. Project Title: Promotion of Quality Cocoon Production and Processing Project in Nepal¹

2. Outline of the Project

The development of sericulture has been identified as a potential project in the mid-hills of Nepal. Nepal's agro climatic conditions are very suitable for mulberry and the rearing of cocoons. But despite of high potentials and large investments by the government and several donors, post cocoon activities involving reeling, twisting, weaving and production of items out of silk fabric have not been adequately developed. The sericulture is seen in the field because the government procures cocoons. This has not only constrained the expansion of sericulture in the country but also the cocoons produced by Nepalese seri-farmers have been of little use to the silk industry because of low quality of cocoons. Farmers have little pressure/push from the demand side (silk industry) to improve cocoon quality. When cocoons are sold at the market, price is assessed on the basis of cocoon quality. This is judged by grading shell percent, filament length, reelability and the percentage of defective cocoons. If the percentage of defective cocoons is high, the price will be affected.

However, in Nepal, it is not the market but the government/MOAC through its sericulture development infrastructures procures cocoons and carries out post-cocoon activities such as drying, reeling etc. The Sericulture Development Division Khopasi (SDD) has been producing threads (single ply) and often selling to Indian Parties at prices far below to the international/Indian market. At present it has one twisting machine which is in operation. Likewise, Silk Processing Centre Itahari However, the quality of the thread produced is often said to be below to the standard. It is therefore Nepalese traders have been importing silk threads mostly from India and China. The importance of providing incentive packages with quality cocoon for private entrepreneurs is now being realized by the government officials, but tangible actions are yet to be undertaken in this regard.

Sericulture is an agro-based industry consisting of mulberry cultivation, rearing of silkworm for egg and industrial cocoon production, and cocoon processing for silk yarn and cloth production. However, Nepalese sericulture is almost stopped at cocoon production and procurement of the cocoon by the government. Implementation of this project is expected to serve the needs of the silk entrepreneurs for it would focus on the production of the quality cocoons.

Focused on the promotion of quality cocoon production and processing, and institutionalization of support systems needed to strengthen the country's sericulture industry, this project will give attention to all those measures that affect production of quality cocoons such as (a) use of the appropriate silkworm races, (b) quantity and quality of mulberry leaf (c) maintenance of required atmospheric conditions (temperature and humidity) in the rearing house (c) scientific methods of rearing (young age and late age worms), (d) type of mountages and care to be taken during spinning (cocoon formation) (e) harvesting of cocoons, (e) transportation of cocoons to nearby collection centres and timely drying of cocoons. The project intends to assist seri-farmers to fetch higher price for their products in the market through the improvements in the quality.

The project activities will directed towards both quality cocoon production and processing of the cocoon for quality end silk products and its marketing.

2.1 Project Purpose and Description of the Outline

The purpose of the project is to test and verify the technologies for quality cocoon production and carry out silk product promotion with capacity building and strengthening the linkages among seri-farmers and stakeholders in the value chain from production of cocoons (raw materials) to processing and end products (silk fabrics). As the project is primarily focused on the production of quality cocoons, it will assist both farmers and sericulture technicians (professionals and field level technicians of government and NGOs) in producing cocoons of uniform shape and size with good reel-

¹ This is a tentative/provisional title for the project which will be finalised with the government during the record of discussions.

ability. The social mobilization will be one of the major activities of the project for which the services of competent Non-Government Organization will be received as per JICA's rule.. The comparative advantages of the NGOs over the government organizations in social mobilization have been well established in the country. The selected NGOs will organize awareness cum training camps in the villages. In these camps technical guidance about modern technology in raising healthy mulberry plantation, quality silk production and silkworm rearing will be given to the farmers by the experts of the DOIED.

The other major feature of the project is that it will build on efforts and achievements of recently concluded JICA assisted Silk Network Model Project (SNMP) (December 2004-March 2006), Mini-Project type Technical Cooperation Project for Sericulture Promotion in the Kingdom of Nepal (December 1999 to November 2002) and its follow up program for the Mini Project-type technical cooperation (February of 2003 to January 2005) and the UNDP supported Sericulture for Rural Development Program (1997-1999).

Annex 1 describes project's targets, milestones and criteria for setting targets and milestones.

2.2 Project Duration

The project will be implemented over a period of 5 years starting from July 2006 to June 2011 after signing of the record of discussions between the Ministry of Agriculture and Cooperatives on behalf of Government of Nepal and JICA-Nepal on behalf of the Government of Japan.

2.3 Counterpart Organization and Related Organizations

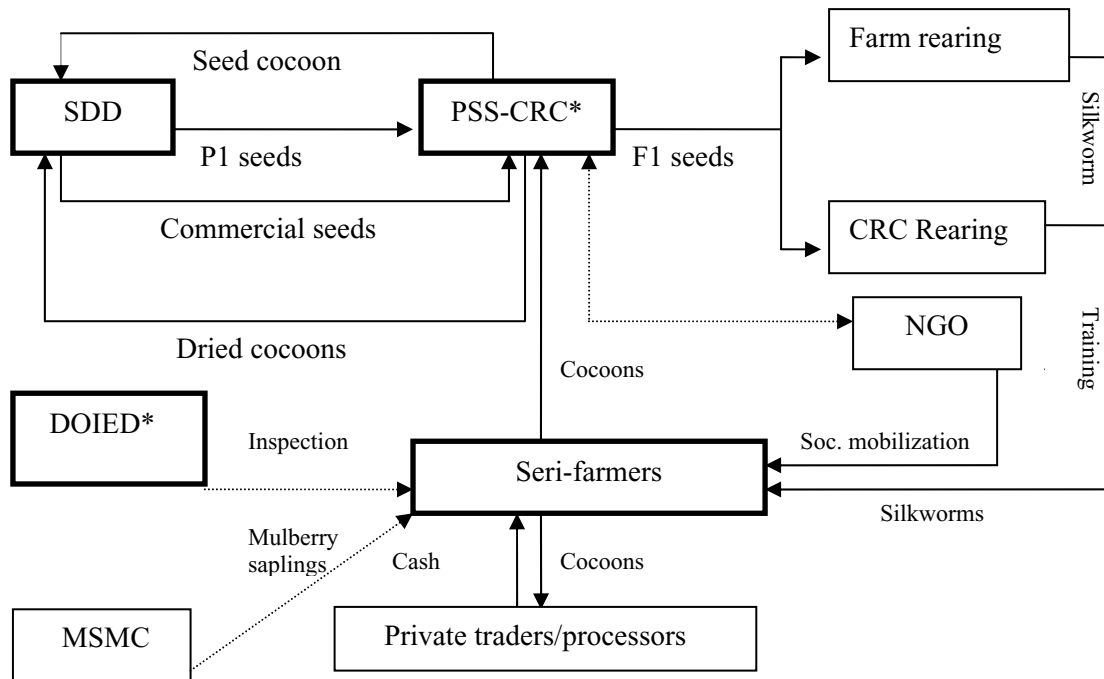
The Counterpart Organization for the project will be the Directorate of Industrial Entomology Development (DOIED) of the Department of Agriculture, and the Parental Stock Seed Cocoon Resource Centre Dhunibeshi (PSS-CRC), which operates under the DOIED will be field office. The organizational structure of the DOIED is shown in Annex 2. As the major concern of the project is to create the demands for the production of the quality cocoons to seri-farmers from the side of the entrepreneurs and assist seri-farmers to produce quality co-coons in sizeable amount, the project will assist in strengthening the linkages and cooperation between the government, non-governmental and private sector.

For linkages and coordination, two committees will be established, the Joint Steering Committee (JSC) at the central level and the field implementation committee (FIC) at the PSS-CRC Dhunibeshi. The secretariat of former will be established at the DOIED and that of the latter at the PSS-CRC Dhunibeshi. Annex 3 gives the constitution and roles and responsibilities of these two committees.

Considering the nature of the sericulture technology and the dual roles and responsibilities of the DADO and PSS-CRC in sericulture development in Dhading district, it is hereby suggested to make the PSS-CRC sole responsible for implementing sericulture development in the project VDCs including mulberry sapling distribution with the coordinating/supporting roles carried out by the DADO. This will make PSS-CRC accountable for sericulture promotional activities in the project VDCs in totality. However, DADO's role in district level coordination, monitoring and overseeing the implementation will remain.

Likewise, competent NGOs will be employed for organizing farmers and carrying out social mobilization related activities. Evidences suggest that NGOs are experienced in social mobilization and establishing good relations and rapport with the poor, vulnerable and disadvantaged people. Figure 1 shows the linkages and coordination between different actors as envisaged by the project.

Figure 1: Linkages and Coordination between Different Actors



* Counterpart Organization

The key roles and responsibilities of different organizations are briefly listed in Annex 3. However, these are indicative roles and not exhaustive.

The Program Director of DOIED will act as director to the project and s/he will nominate a senior officer to work as a Project Coordinator responsible to the project in general and particular to him/her. The PC will be the counterpart to the project advisor provided from JICA side. The PC will be the Member Secretary of the PCC.

Likewise, Chief of the PSS-CRC, Dhunibeshi will be the counterpart to the Field Advisor provided from JICA side and act as the Member-Secretary to the Field Implementation Committee (FIC).

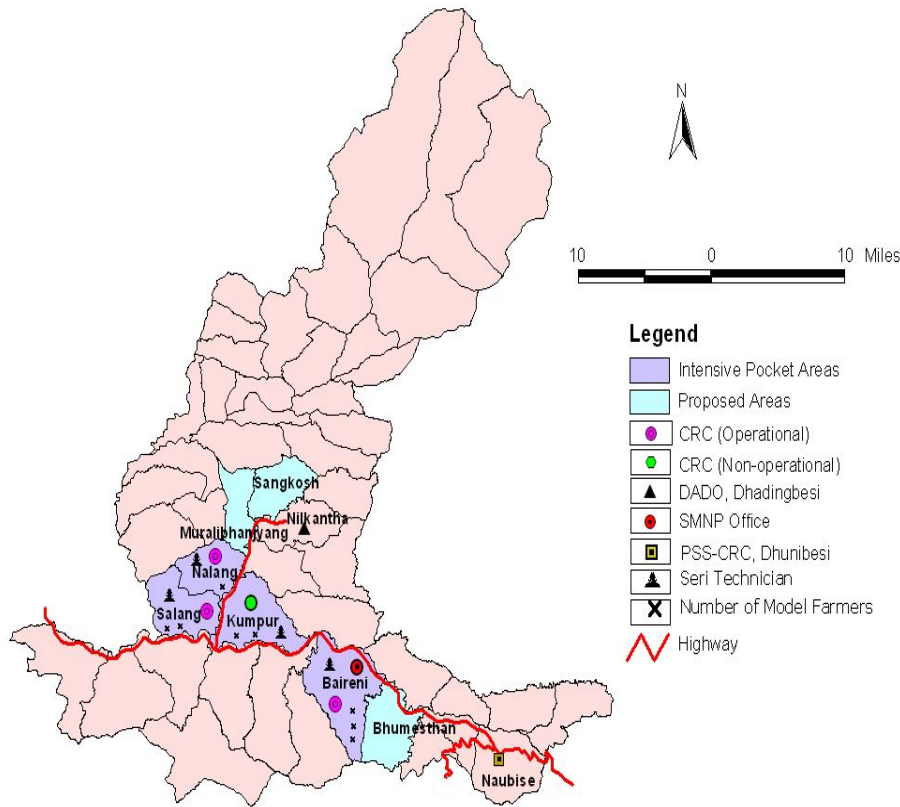
2.4 Numbers of Beneficiaries and Area

The project will be implemented in selected VDCs of Dhading district (Figure 2) with focused on phase wise implementation as follows:

(a) Intensive works in present four SNMP VDCs (Bairini, Salang, Nalang, Kumpur)

(b) Preparatory phase in three additional VDCs (Sankosh, Bhumisthan, Murle Bhanjyang) - In these VDCs, activities related to social mobilization and formation of groups will start from the first year of the project and infrastructure development activities like CRC construction will commence on the second and third year of the project implementation. These VDCs are expected to be ready for the intensive phase at the end of the third year or beginning of the fourth year. These VDCs have been selected based on criteria such as potentialities, accessibility, initiation of mulberry plantations, farmers' interest, demands and participation in silkworm rearing activities. As shown in Annex 1, at least 385 farm families will be involved in seri-farmers by the end of the project period.

Figure 2: Project Areas



3. Background of the Project and Consistency with JICA’s Policy or Program

3.1 The Background and the Problems Facing With

As sericulture has better prospects in Nepal, the government has been making several attempts to promote it in the country with the establishment of the Division of Entomology in 1967 under the then Department of Agriculture Education and Research (DAER)², and Seri-Farm at Khopasi-Kavre in 1975 under the Department of Agriculture³. Merits of the sericulture industry, among others, include the reduction of poverty, creation of employments in the rural areas, particularly for women, conservation of environment and reduction of landslides by mulberry plantations. Sericulture is an appropriate business/occupation to diversify agriculture and create employment opportunities in the rural sector and the quality of the silk which Nepal can produce because of its agroecological environment and niches. It is therefore many donors (multi-lateral and bi-lateral) like UNDP, JICA and KoICA have supported the farmers and the government of Nepal in promoting sericulture in Nepal.

For the development of the sericulture, the government has already established 9 farms (Annex 2) together with a Sericulture Development Division in Khopasi. One of the most significant achievements in this sector is that the country has now become self-sufficient in seri egg production⁴ (Bivoltine silkworm eggs) and the mulberry saplings. SDD Khopasi and Mulberry Sapling Management Centre Bhandara have now collected 21 and 42 parental sources of mulberry plants. SDD

² Although some history could be traced about the sericulture development in Nepal since 1911.

³ The DOA was established in 1972 by merging 5 departments which included the DAER.

⁴ Self-sufficiency has been achieved in quantity but not in terms of quality

has collected 34 types of parental stock of Silkworms and has a capacity of producing 10,000 boxes per year. However, despite all these achievements, the country has noted several ups and downs in the production of co-coons. According to the government data, at one time, Nepal produced up to thirty-two tons of cocoons which dropped to around 21 tons in 1996-97, and further dropped to 17 tons in 1997-98. In 2003/04, the production of cocoons has again reached to 35 ton. The problem is not only low level of co-coon production but also the quality of the co-coon and private traders' little responses to cocoons produced by Nepal because of the failure of the seri-farmers to ensure the quality and scale of the production. For private traders, cocoons produced by Nepali seri-farmers are of little use for the following reasons:

- Unavailability of desired amount of cocoons when needed
- Cocoons of generally poor quality and inconsistency in size
- Unreliable grading system

Apart from the above, the most difficult issue for the Nepalese private traders is the price set by the government for the cocoons, which, according to them, is too high to produce end products (silk materials) at competitive price⁵. They claim that the cost of production of the finished products with Nepalese cocoons will have a big, negative impact in the marketing process and that they would not survive in the market. In the silk business, to whom they need to compete is no countries other than China and India- which occupy the first and second positions respectively among silk producers in the world. While the problem of the private traders appears real, it is equally not possible and practical for the government to act as a trader and keep on continuing buying of cocoons and get involved in the production of end products. Neither the activities such as the procurement of cocoons and processing them to produce end products by the government are consistent and favorable in the context of 21st century and with the open, liberal market economy policy of the government, nor will the financial constraints and the market promotion inexperience permit the government to get involved in the trade. Unless the government gets success in assisting seri-farmers to produce quality cocoons with sizeable amount and succeeds private sector to procure Nepali cocoons and process it to produce end products with Nepali brand and pride, the future of the sericulture is very bleak and uncertain. This project has been designed to address these fundamental problems. Annex 4 presents nature and types of problems which need to be tackled or addressed for the production of quality of cocoons.

3.2 Policies and Countermeasures by the Recipient Government

Having been aware of the socio-economic and ecological benefits of the sericulture, the Nepalese government has been promoting sericulture since 1970s. In 1995, the government developed a Long-term Sericulture Development Plan (LSDP) to boost the industry. The purpose of the LSDP is to promote the development of sericulture in the rural communities, which ultimately is expected to increase their incomes on self-sustained basis. The plan proposed mulberry plantation in 7,500 ha over a period of 10 years and also suggested roles for the various agencies like NGO, private sector, universities, research institutes etc.

The LSDP underlined the importance of carrying out the following activities strategically for the sericulture development of the country:

- Training activities for transfer of knowledge and appropriate technology to the seri-farmers
- Specialized technical services/support to the seri-farmers
- Supply of inputs and their timely delivery
- Cooperative Chawki rearing activities (community rearing centers)
- Cocoon collection and marketing supports and linkages with private markets
- Co-ordination of different activities to attain higher standards/quality and orders
- Result-oriented applied research and extension activities to recommend location and season specific mulberry and silkworm varieties

⁵ The present cocoon procurement price was set by the government in 1999/00 and the government has not even in position to review and revise the price despite high annual inflation rate which approximates two digit figures.

Further to the LSDP, in 1995, the government formulated the Agriculture Perspective Plan (APP) with a 20 year vision for directing agricultural sector. The purpose of APP is to accelerate agricultural growth rate by two percent points: from about 3 percent per annum to 5 percent per annum. Having recognized sericulture as one of the promising high value crops for increasing agricultural growth and income generation in the rural areas, APP included sericulture as one of the most important high value crops appropriate for providing additional resources and efforts.

The periodic plans, both the past Ninth Plans and the current 10th Plan (2002-07) have duly acknowledged the contribution of sericulture to the poverty reduction. These plans have underlined the importance of technical package development and dissemination of sericulture technology, improving the quality of the co-coons, effective use of the private sector/traders/entrepreneurs in processing and fabrication of silk products.

Government policies have duly recognized sericulture's high potential for diversification of agriculture with positive impact on poverty reduction, environment protection, particularly, in the hill slopes.

3.3 Consistency with JICA's Policy and Country Program

Japan has been extending assistance to Nepal since 1970 taking into account the seriousness of the poverty situation and the undeniable need for assistance to the country. As poverty reduction is the top priority for Nepal, so is for the Japan. A country study for Japan's official Development Assistance to the Kingdom of Nepal (May 2003) shares with the government's position with regard to the poverty and maintains that the poverty measures should be aimed at achieving both economic growth and disparity reduction. Pro-poor growth strategy adopted by the government has provided a platform for Japan to support Nepal in its efforts towards the reduction of the poverty.

As part of its support to the self-help efforts of the Nepalese government in "poverty reduction", JICA has prioritized its aid to Nepal as follows:

- **Improvement of people's living conditions** through better social services and the empowerment of local communities;
- **Better living standards** through increased agricultural production and expanded agricultural extension services;
- The development of the socio-economic infrastructures for **industrial promotion** and better living conditions; and
- **Environmental conservation** through sustainable development

The proposed project is consistent and coherent with above Japan's prioritization with regard to development assistance for Nepal from all of above mentioned four criteria or reasons. This project will not only improve people's living conditions through empowerment of local communities, particularly women, and raise local peoples' net income through increased agricultural production, but also create an enabling environment for the revitalization and promotion of silk industries by enhancing the availability of good quality cocoons required for the industry at competitive prices. Likewise, the project contributes to the environment conservation through increased cultivation of mulberry plants. The role of mulberry gardens in soil conservation, stabilizing terraces, carbon sequestration and reducing the land slides has already been recognized. Many farmers have been planting mulberry even to halt terrace ridges from sliding down and to control soil erosion.

Further to the above, this project will contribute significantly towards sustaining JICA's long involvement, investment and efforts in sericulture development, particularly in the areas of quality silk production.

4. The framework of the Project

Reducing poverty is the overriding goal of GON's 10th Five Year Plan and is the fundamental factor for JICA's assistance to Nepal. The proposed Project addresses this objective through its contribution to the increased income of rural people by the production of saleable quality cocoons.

4.1 Project Goal

The overall goal of the project is to develop the model for quality cocoon production and post harvest activities which could be replicated and increase income of semi-farmers through the improvements in the quality cocoon production (Annex 5).

Central to the above goal is to enhance farmers' capacities for producing quality cocoons through increasing their technical knowledge and skills combined with pressures from the demand side. At present, market has no role in regulating the quality and price of the cocoons. The price of the cocoon is set by the government which does not reflect market reality as has been evidenced by the continuation of the procurement price of cocoons set in 1999.

Despite the cocoons are procured on the basis of grades of the cocoons, both farmers and technicians involved in this business know and agree that they do not have adequate technical knowledge and skills in this regard. What is necessary to understand is that silk is not just another simple commercial crop like ginger or vegetable crops, nor it is a mere rural support program? The project envisages to change this attitude and perceptions among semi-farmers, technicians and policy makers because, in Nepal, rearing silkworms has become just like a rural support system where the government would buy the cocoons and later sell to any parties at the price set by the government long ago regardless of world market price and loss to the government.

In view of the above, this project will be operated with a two pronged strategy (a) improving the quality of the cocoons both during the pre-cocoon and post cocoon stages and (b) offering a conducive and supportive environment to the entrepreneurs of the private sector for the procurement of the cocoons towards the development of the unique "Nepali silk products". Central to the project is self-attraction of the private sector to procure cocoons produced in Nepal due to the high and reliable quality. Nevertheless, the project does not overrule the needs for providing incentives and necessary support packages to the private sector in the beginning in order to make them habitual to buy cocoons produced in the country.

4.2 Outcome of the Project

The purpose of the project is quality cocoon production and silk product promotion in target/model area (Dhading district) verified with capacity building and strengthening the linkages among farmers and stakeholders. Sericulture is an agro-based industry consisting of mulberry cultivation, rearing of silkworm for egg and industrial cocoon production, and cocoon processing for silk yarn and cloth production. Its ultimate product is silk, the soft and lustrous, elegant and beautiful fabric known as the "Queen of Textiles" whose inherent properties cannot be duplicated by any fabric in the world. Poorer the quality of the cocoon, poorer would be the quality of products developed. This project will therefore enhance semi-farmers capacity and technicians involved in sericulture to take appropriate measures during silkworm rearing and mounting to obtain a better quality of cocoons with higher silk content, longer filament, better reelability and lower percentage of defective cocoons. Unless the entrepreneurs are ensured of quality of cocoons, they would not invest in the silk industry no matter of whatever support and subsidies are provided. Understanding the grading process is important because price of cocoon is assessed on the basis of grade which is determined on the basis of shell ratio percentage.

The project will enhance semi-farmers' capacity such that they would be able to produce 4A grade of cocoons. Annex 6 has briefly presented the quality of cocoons which this project has envisaged for.

The major indicators for assessing the quality of cocoons will be shell % of fresh cocoon. By the end of the project period, more than 90% farmers will produce 95% or more good quality cocoons with

virtually no complaints by the processors/entrepreneurs with regard to the quality of Nepalese cocoons, and that they would be able to produce different silk products from cocoons produced in Nepal with Nepali brand and pride. Procurement of the cocoons by the private traders will be therefore key indicators for the success of the project. Despite the project envisaged complete reversal in the procurement of the cocoons by the end of fifth year of the project (procurement by the private entrepreneurs from that of the government procurement), earlier will be the better for all the parties-farmers, government and traders. As summarized in the PDM, this project expects the following with regard to private sector procurement of the cocoons:

- First year- 100 % procurement by the government as per the present arrangement
- Second year- At least 25% procurement by the private sector
- Third year- At least 50% procurement by the private sector
- Fourth year- At least 75% by the private sector
- Fifth year- 100% procurement by the private sector

4.3 Output and Activities

The project has envisaged three major outputs as follows:

- 1) The standardized technology for quality Cocoon Production and Post Cocoon harvest is established
- 2) The staff's capacity for promoting the improved technology and post cocoon know-how are strengthened
- 3) The linkage among Government, NGO and private sector are strengthened

The activities for each of the three outputs are described in the PDM (Annex 5) and an action plan by project year is given in Annex 7. These activities will help to realize the three outputs which subsequently will contribute to the achievement of the project purpose. The action plan is tentative and needs to be reviewed first at the time of the start of the project, and then reviewed and revised annually to reflect the changed contexts, situations and the project achievements. Project activities are designed with the following strategies:

A. Quality and productivity improvement of cocoons

- Improvement in mulberry garden management, quality egg production, silk worm rearing and mounting technology
- Establishment of farmers field schools (Learning by doing)
- Repair, renovate and construction of silkworm rearing centres
- Provision of credit facility for construction of silkworm rearing houses/sheds
- Provision of farmer experts and their training
- Training of farmers and farmer experts
- Extension material production and dissemination

B. Strengthening seri-farmer groups

- Social mobilisation by a NGO selected through competitive process
- Federation of farmer groups into seri-cooperatives
- Exposure visits and observation tours (seeing is believing)

C. Capacity building of government staffs and counter parts

- In country training
- Out country training and exposure visits
- Updating seri farmers' database
- Workshops and seminars

D. Public private partnership

- Enabling private sector through creating conducive policy environment
- Linkages among NGOs, Cooperatives, private traders and government
- Handing over post cocoon activities to cooperative and private sector

4.4 Project Inputs

4.4.1 JICA inputs

Under the project, JICA will provide the following inputs focused on the improvements of the quality of the cocoons and market promotion:

- Project Technical Advisor (Expert in quality cocoon production):
- Short-term experts (silk market promotion, private sector development and processing) as and when required-on call basis -
- Field Advisor
- Farmer experts
- Procurement of services of NGOs for social mobilisation
- Farmers' training
- Construction, repair and rehabilitation of CRCs (farm and community level)
- Provision of grant/assistance for the construction of silkworm rearing houses at farmers level⁶
- Counterpart staff training and exposure visits
- Training of trainers (TOT) in quality co-cocoon production and TOT for FFS, (professional and grassroots staff)
- Costs of testing and verifying low cost mountages technologies
- Study on marketing and private traders mobilisation in sericulture, and implementation of action research thereafter based on the findings of the study
- Documentation of important cutting-edge technologies, success stories and cases through electronic medias like videos and CDs
- Organisation of district level workshops and seminars
- Development of physical facilities at PCC-CRC including incubation and cold rooms
- Construction of model local resource base cocoon dryer
- Provision of egg/cocoon carrying van for the use in PSS-CRC, Dhunibesi and SDD Khopasi
- Construction of 4 cold rooms in SDD
- Provision of seed money/revolving basket fund for the construction of rearing house

4.4.2 Government inputs

Under the project, the government will bear the costs of the following:

- Project Director, Project Coordinator and Field coordinator (salary, allowances, field supervision costs, field travel costs etc)
- Office space at DOIED and PSS-CRC Dhunibeshi.
- Establishment and operation of farmers' field schools
- Costs of organising meetings of project coordination committee and field implementation committee
- Maintenance of seri-farmers database
- Policy development for enabling entrepreneurs of private sector to get involved in the silk industry
- Inspection for quality and standardization of cocoons

⁶ At present, a model silkworm rearing house is estimated to cost at NRs 50,000.00. A 25% grant assistance for silkworm rearing house will cost the project NRs 51,25,000.00 9US\$-70,000.00)

4.5 Important Assumption and Killer Assumption

The only killer assumption for this project is the deterioration of the peace and security situation in the country to the extent that it might be impossible to implement the project due to the restrictions in mobility and carrying out field activities as a result of the security of the staff and expatriates. However, likelihood of the deterioration of the situation is low. Furthermore, based on the recent experiences with regard to service delivery approach in the conflict situation, the project has proposed for undertaking the services of NGOs, utilization and mobilization of farmer experts (local persons) and use of conflict-sensitive service delivery approaches. Further to this, pocket areas happen to be situated along major high way road corridors such as Tribhuvan Highway; Mahendra Highway and Dhading district highways (see Figure 2). Therefore, the project expects that it would not be difficult to implement the project in the present conflict situation and that this has been further taken care by selecting VDCs with little conflicts situated along road corridors, proposition to use local farmer experts and NGO for social mobilization. Nevertheless, the project might still encounter some delays and the performance might be reduced if the security situation further deteriorates. Except this, the project has no other killer assumptions.

With regard to other assumptions, project has one assumption at purpose level and 9 at the output level. Of the ten assumptions, nine are technical and one is policy level. As most of the assumptions are technical in nature, these are likely to be achieved. But if assumption with regard to private sector remains to be met, the project is likely to encounter a high risk. Important assumptions of the project are as follows:

Policy level (Purpose level) :

- A detail market study is carried out in the first year to identify private sector's problems and constraints to procure quality cocoons produced by Nepalese farmers and that the government releases policies with necessary incentive packages and support (such as custom tariff rebate, credit facilities, incentive packages which will attract private sector to buy quality cocoons and silk threads produced in Nepal.

Technical side at Output level:

- The present level of self-sufficiency in silkworm seed production is maintained and the MOAC can avail quality F1 commercial seeds (hybrid seeds) as per demand
- Good quality mulberry plants are available for increasing area expansion as per the demands of the farmers
- The MOAC will negotiate with ADB/N and other appropriate commercial banks to lend medium-term credit to semi-farmers for construction of rearing house, equipment and mulberry plants.
- MOAC will not decrease the number of approved positions during the duration of the project
- Sericulture trained staff are not transferred to other faculties.
- Presently trained farmer experts are retained, employed and utilized
- Government develops and implements appropriate policies for attracting private traders and entrepreneurs to procure cocoons and produce end products out of silk threads produced by them with Nepalese dignity and pride.
- DOIED/PSS-CRC inspects the quality of cocoons produced in the farmers level timely and effectively.
- Competent NGOs are used for social mobilization

5. Result of Ex-ante Evaluation by Five Evaluation Criteria

5.1 Relevancy

The project's objectives are highly consistent and coherent with the 10th Plan objective of poverty reduction and additional income generation for the poor and targeted groups. The ex-ante evaluation showed the project relevant from the policy perspectives. Sericulture is a high priority commodity identified by the APP. The current 10th Plan which is formulated within the framework of the APP has, therefore, given a high priority to the sericulture. The Medium Term Expenditure Framework, the purpose of which is to prioritize government funding and expenditures as to the objectives of the Poverty Reduction Strategy Paper (PRSP), has provided one of the topmost priorities to this sub-sector

and included under the lists of priority one (P1) projects. This suggests high relevancy of this project from the policy perspective. Government allocation of adequate funding to procure cocoons produced by Seri-farmers and generally paying them within a week or so further illustrates government's commitment to support the sericulture industry.

From the perspective of the beneficiaries also, the project is highly relevant. It responds to employment needs of the poor and disadvantaged women. Most of the activities in sericulture are carried out by women. Likewise, this project is also relevant from the implementation side because by now most of the basic infrastructures such as the construction of community resource centers have also been carried out.

5.2 Effectiveness

The output to purpose level relationship is very strong and consistent in this project. Not only the three outputs contribute to each other but also these outputs individually contribute to the purpose of the project which is quality cocoon production and silk product promotion in target/model area (Dhading district) verified with capacity building and strengthening the linkages among seri-farmers and stakeholders.

The first output which is about the standardization of technology for quality Cocoon Production and Post Cocoon harvest will obviously contribute to the production of good quality cocoon in a large scale as per the demand of the traders and entrepreneurs. One of the reasons for low quality of cocoon in Nepal is due to the lack of standardized technology which this project has attempted to respond to. Self-sufficiency achieved by the DOIED in producing high yielding silkworm races will certainly contribute to make the project effective. Likewise the second output which is about strengthening staff's capacity for promoting the improved technology and post cocoon know-how will make technical staff very confident on what they are promoting, why they are promoting and how they are promoting. Enhancing staff's capacity will, in turn, enhance farmers' capacity to produce quality cocoons. The last but not the least, the third objective which is about the strengthening of linkage among Government, NGO and private sector will enable the government to come up with the appropriate packages and support mechanisms for attracting private entrepreneurs and to respond to the problems and constraints of the private traders more appropriately and timely. Likewise, the NGO will be of great help to the government in terms of using participatory approaches and mobilizing farmers to produce quality cocoons as per the demand of the market. Thus the three objectives contribute to the purpose of the project which in turn is again consistent with the overall goal of the project. The project is therefore effective.

5.3 Efficiency

The ex-ante evaluation found high efficiency of the project as it would continue to utilize facilities, resources and equipment made available in Dhading district through previous JICA project namely SNMP and UNDP's SRDP. Likewise, the project will be able to use the facilities already developed at PSS-CRC Dhunibeshi and DOIED. The despite the project duration is five years, no major equipments and facilities are suggested except a few such as the provision of CRCs. Timely arrival of the experts from JICA side and designation of PD, PC and FC from the side of the government and initiating to carryout their roles and responsibilities accordingly would further enhance the efficiency of the project. The performance of the project is expected to be efficient due to the comparative advantages of the NGOs which, among others, include flexibilities in operation, freedom from bureaucratic constraints, focus on people-centred development, ability to maintain social relationships and harmony, social capital formation, reaching the poor and disadvantaged groups, ability to involve the poor in a learning process and so forth.

As discussed above, the project is expected to be efficient because the project intends to realize outputs with quality, timely and reliable inputs and services (technical support and backstopping) by various actors and stakeholders such as government, private sector and NGOs. Improved linkages and coordination among them will make the project operation efficient, which, in turn would help to achieve project outputs efficiently. Farmers will improve the quality and quantity of cocoon

production by utilizing their newly acquired technical knowledge and skills. Since the project will build on the achievements and lessons learned of the previous projects, particularly, SNMP, the project is efficient.

5.4. Impact

The evaluation showed a few positive and negative impacts with the implementation of this project. However, positive impacts outweigh negative impacts which could also be overcome by some extra or additional efforts on the part of the executing agencies. Therefore, in terms of likely impact the project is sound and plausible.

Positive Impacts:

- Improvement in silk percent
- Net income of seri-farmers increased
- Proven low-cost sericulture technologies for wider replicability
- Improvement in work efficiency of seri-farmers
- Increase in women's contribution to household income
- Contribution to gender equity
- Soil and moisture conservation
- Less use of pesticides and chemical fertilizers
- Carbon sequestration due to fast growing nature of mulberry plants
- Capacity building of the farmers, FEs and staff working at DOIED, PSS-CRC Dhunibeshi and other seri farms

Negative Impacts:

- Women's workload increase
- In the beginning, some farmers might be frustrated due to price decrease because of market adjustment;

5.5 Sustainability

The project's sustainability was assessed from three key dimensions of sustainability- economical, technical and institutional.

Economically, the project is sustainable as it does not demand high investment costs either from the project beneficiaries or from the project executing agency and the counterpart organizations. Project's focus on appropriate low cost technologies has made the project economically sustainable. Following the termination of the project, seri-farmers would not encounter difficulties to continue with silkworm rearing further because of financial constraints. This will further allow the executing agency to replicate the model in other potential areas.

Technically, the project is sustainable because the project is to test appropriate, already proven and simple technologies. The project would not subscribe to high-tech technologies which, in the future, the seri-farmers and technicians involved in the sericulture would not be able to use/apply. The farmers present practice of not counting labor cost in farming operation, particularly in sericulture, will also contribute to the sustainability of the project.

Institutionally, the project is sustainable as it has envisaged working with the existing government institutions and organizations namely the DOIED and PSS-CRC, Dhunibeshi. The project efforts and achievements including the lessons learned will remain with these organizations which would be used in the future. Both DOIED and PSS-CRC, Dhunibeshi are permanent government organizations which are responsible for the sericulture development of the country from their respective areas of operation. Furthermore, the seri-cooperative will take on responsibilities for spreading of sericulture, silk production among rural smallholders and act as a facilitator or linkages between the producer and the government during the pre-cocoon stage or up to the harvesting stage and later act as a negotiator

between the producers and private traders/entrepreneur during the marketing or selling of fresh cocoons. The cooperative might even get involved in buying fresh cocoon and drying to sell to the processors or even start producing end products. Seri-farmers will not experience the state of vacuum after the termination of the project.

ANNEXES

Annex 1: Project Target and Milestones (Tentative)

SN	Details	Unit	Base Year (2005/06)	First year* (July 2007)	Second Year (July 2008)	Third Year	Fourth Year	Fifth Year (July 2011)	Remark
1	Mulberry orchard (Cumulative)	Ha	Data not maintained	58	78	102	114	122	
2	Mulberry area (Productive)	Ha	46 (Estimated)	46 (Estimated)	50	60	74	90	Productive Mulberry area- 2 ropani per box or 0.1 ha per box
3	Number farmers planting mulberry (Cumulative)	Number	225	285	385	505	565	600	Year one mulberry plantation will enable farmers to rear silkworm in year three only.
4	Silk-worm rearers	No	200	200	220	270	340	410	176 rearers in four VDCs and 24 in other 3 VDCs
5	Average box per rearer	Ratio	2.3*	2.3*	2.5	2.5	3	3	
6	Number of boxes	No	460	460	550	625	1020	1230	
7	Number of boxes per cocoon	No	10,500	10,500	11000	11500	11800	12000	
8	Productivity per box	Kg	15.2*	15.2	16	17.5	19	20	
9	Production	Mt	7.00*	7.69	9.6	13.65	18.98	24.6	
10	Weight of cocoon	Gm	1.44*	1.44	1.45	1.52	1.51	1.66	
11	Good cocoon	Percent	65%**	70%	75	80	85	90	See Annex 7 for the characteristics of defective cocoons.
12	Cocoon grade	Shell ratio percent	2A	2A	3A	4A	4A	4A	See Annex 7 for further discussions on the good cocoons
13	Number of community CRC (Cumulative)	Number	3	3	4	7	7	7	
14	Seri-farmer groups (Cumulative)	Number	23##	23	25	30	36	42	@ 12 farmers per group, social mobilization by an NGO
15	Farmers field school (Cumulative)	Number	0	0	4	7	14	21	Assisted by NGO, facilitated by farmer experts, technical support from PSS-CRC and field office
16	Seri-farmer's cooperative (Cumulative)	Number	0	0	0	0	1	1	Output of NGO's facilitation

* Based on the database of seri-farmers prepared by the SNMP in four focused VDCs- Bairini, Kumpur, Salang and Nalang, and data agreed with DOIED. Despite the percentage of good cocoon reported by SMNP is about 85%, this document has adjusted it to reflect the district average and national reality as suggested by the DOIED.

##- Source: Annual Report, SDD, 2004, Discussions with DOIED

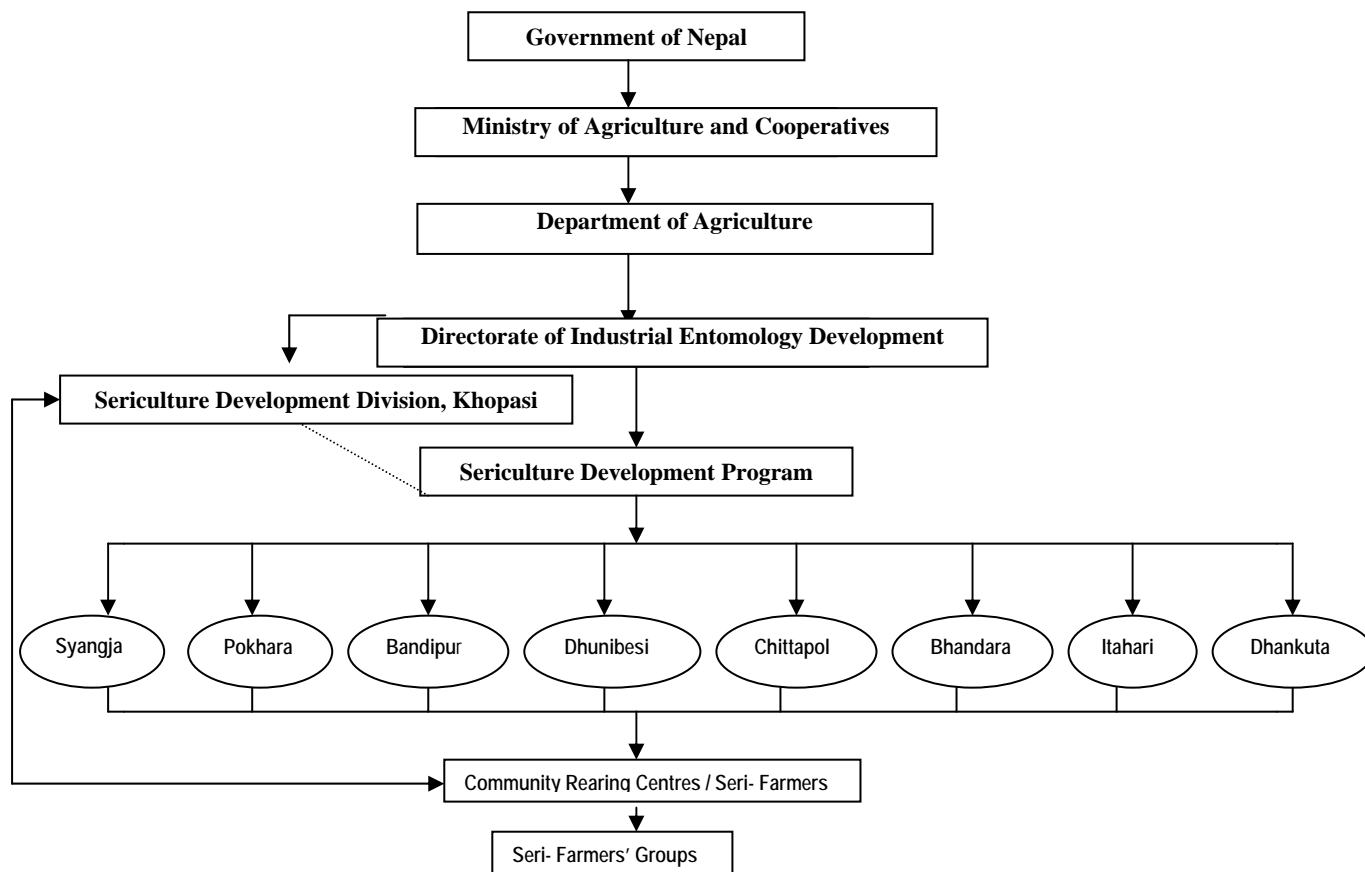
Annex 2: Sericulture Related Organizations (Technical Staff) under DOA

S. N.	Organizations	Professional (Officer)					Technical Assistant				Total		
		I	II	III S	III E	Total	I	II	III	Total	P	A	Total
1.	DOIED, Hariharbhawan	1	1	2	1	5	1			1	5	1	6
2	SDD, Khopasi		1	3	1	5	3	4	3	10	5	10	15
3	CGC, Bhaktapur			1		1	1	3		4	1	4	5
4	PSSCRC, Dhunibeshi			1		1	2	3	1	6	1	6	7
5	PSS-CRC, Bandipur			1		1	2	3		5	1	5	6
6	SDP, Kaski			1		1	2	3	1	6	1	6	7
7	SDP, Syanja			1		1	2	3	1	6	1	6	7
8	SDP, Dhankuta			1		1	2	2		4	1	4	5
9	MSMC, Bhanadara			1		1	2	3	1	6	1	6	7
10	SPC, Itahari			1		1	2	3	1	6	1	6	7
	Total	1	2	13	2	18	19	27	8	49	18	54	72

DOIED: Directorate of Industrial Entomology Development
SDD: Sericulture Development Division
CGC: Commercial Grainage Center, Chittapol, Bhaktapur
PSS-CRC: Parental Stock Seed Cocoon Resource Center
SDP: Sericulture Development Program, Kaski
SDP: Sericulture Development Program, Syanja
SDP: Sericulture Development Program, Dhankuta
MSMC: Mulberry Sapling Management Center, Bhandara, Chitwan
SPC: Silk Processing Center, Itahari, Sunsari

S- Sericulture (Plant Protection Faculty under the Agriculture Service)

E- Agriculture Extension Faculty under the Agriculture Service.



Annex 3: Key Roles and Responsibilities of the Different Actors in Sericulture Development

A. Organizations

SN	Actors	Roles and responsibilities
1.	Seri-farmers	<ol style="list-style-type: none"> 1. Rear F1 (commercial seri-seed) at community resource centre 2. Rear late age silkworm to produce co-coons 3. Plantation of mulberry saplings 4. Manage mulberry garden 5. Bring cocoons to the collection centre 6. Sale cocoons
2.	CRC	<ol style="list-style-type: none"> 1. Maintenance of hygiene and disinfection of rearing house 2. Collect demand of the silkworm eggs and pass to the PSS-CRC through farmer experts 3. Rear young age silkworm 4. Distribute silkworm to seri-farmers for commercial co-coon production
2.	Parental Stock Seed Cocoon Resource Centre (PSS-CRC), Dhunibesi	<ol style="list-style-type: none"> 1. Rear F1 (commercial seri-seed) at the farm 2. Distribute F1 seeds to CRC for rearing 3. Provide technical backstopping for silkworm rearing at community rearing centre and at farmers' silkworm house for late age silkworm rearing, and for mulberry cultivation and management, 4. Impart training to seri-farmers to produce quality cocoons and manage subsidies and grants available to seri-farmers as per the norms approved by the MOAC (all subsidies except on the prices and transportation of mulberry saplings) 5. Assist seri-farmers to increase productivity of mulberry plantations and expand new areas for expansion of mulberry cultivation 6. Assist private traders to procure cocoons produced by seri-farmers 7. Oversee social mobilization activities of the NGOs 8. Assist farmer experts and farmer groups etc to design the project (1 VDC one project). If a VDC has three groups, even then it will be considered as one project. 9. Collect mulberry saplings demands and distribute to seri- farmers at subsidized price 10. Organize monthly meeting of field implementation committee
3.	Project Field Office (JICA-Field Office)	<ol style="list-style-type: none"> 1. Identify, mobilize and provide technical backstopping and support to seri-farmer experts (at least 30% farmer experts should be women farmers) with technical backstopping and support of PSS-CRC 2. Technical support and guidance to CRCs 3. Assist farmers to ensure quality in cocoon production and in grading and marketing of cocoons 4. Work as resource persons for training organised for JT/JTAs, FEs, SFGs 5. Manage technical assistance available to the district as a part of JICA assistance to the project. 6. Assist in maintaining and updating seri-farmers' database 7. Training to seri-farmers (model farmers, seri-technicians and other farmers) 8. Assist PSS-CRC to organize monthly meeting of FIC
3	District Agriculture Development Office (DADO)	<ol style="list-style-type: none"> 1. Hand over already formed seri-farmers groups and seri-pocket areas to the PSS-CRC in project VDCs 2. Coordinate, oversee the implementation of the project and advise to the PSS-CRC and FO timely 3. Maintain updated seri-farmers records 4. Participate in the monthly meeting of FIC 5. Undertake seri-market promotion activities and help PSS-CRC and field office to encourage private sector to procure co-coons
4.	NGO	<ol style="list-style-type: none"> 1. Undertake social mobilization related activities such as (seri-group organization, cohesion and conflict resolution etc.) 2. Assist seri-farmer groups to federate and form a district level seri-

SN	Actors	Roles and responsibilities
		<p>cooperative (cooperative specialized in sericulture- promotion, technical backstopping and trading)</p> <ol style="list-style-type: none"> 3. Work closely with the PSS-CRC and the project field office 4. Participate in the FIC 5. Use and mobilize seri-farmer expert 6. Facilitate and encourage private traders to get involved in sericulture, particularly in post-cocoon activities and procurement of cocoons
5	DOIED	<ol style="list-style-type: none"> 1. Develop the appropriate and practical technology asset for seri-farmers 2. Practice the technology of asset collaborating with NGO and improve when necessary 3. Provide the existing service for distributing silkworm egg, disinfectant, and mulberry sapling, and so on 4. Inspect the cocoon quality properly 5. Enable the use of Governmental facilities and equipments 6. Organize the training program for JT/JTA not only the personnel involved but also external JT/JTA with the result of the filed activities 7. Take initiative for disseminating and replicating the result of the model 8. Coordinate the project activities at the central level which, among others, will include the preparation of the TOR for the NGO, selection of the NGO, overseeing the implementation processes and performance assessment 9. Facilitate, oversee implementation, supervise and monitor field level programs 10. Ensure that the all support (technical, financial, materials and institutional) arrives to the district timely and qualitatively 11. Ensure that mulberry saplings, commercial seeds (F1) are available in the district timely 12. Organize trimester meeting of central joint steering meeting 13. Promote silk and private procurement of co-coons 14. Develop packages for attracting and involving private traders in the silk business (silk promotion policies, budgets/staffing, establishing linkages and access to appropriate institutions and organizations) 15. Maintain and update database of seri-farmers
6	Project Advisor's Office (JICA Project Office)	<ol style="list-style-type: none"> 1. Identify and select NGOs for social mobilization as per JICA's rule 2. To give the technical support and advice for the establishment of the standardized technology for quality Cocoon Production 3. To support the promotion of selling of the product in the area 4. Provide technical assistance/support to farmers for expansion of mulberry areas and management of mulberry orchards 5. Facilitate training of seri-farmers (model farmers, seri-technicians and other farmers) 6. Technical backstopping to seri-farmers and processors/traders, 7. Monitor and supervise the functioning of project field office Dhading 8. Assist DOIED in market promotion of silk materials and assist to create demands for co-coons from the private sector 9. Help government of Nepal to formulate the policy for strengthening the relationship with private sector 10. Assist the government in designing appropriate strategies (packages) for motivating/facilitating the private sector to procure cocoon from the farmers 11. Assist the government to focus on sericulture research, extension and training
7	Sericulture Development Division (SDD), Khapasi	<ol style="list-style-type: none"> 1. To maintain and preserve the pure lines of silkworm, <i>Bombyx Mori L.</i> 2. Carry out seed cocoon hybridization and distribute F1 seeds (commercial seeds) to Parental Stock Seed Cocoon Resource and other sericulture farms under the DOIED 3. Undertake participatory research/studies to increase the productivity and quality of mulberry gardens, and to realize the potentials of the improved mulberry varieties and silkworm hybrids, the mulberry cultivation and

SN	Actors	Roles and responsibilities
		silk worm rearing technology packages
8	Nepal Agriculture Research Council	Assist/co-work with the SDD and PSS-CRC for undertake participatory research to increase the productivity and quality of mulberry gardens, and to realize the potentials of the improved mulberry varieties and silkworm hybrids, the mulberry cultivation and silk worm rearing technology packages
9	Mulberry Sapling Management Centre, Bhandara	Produce and avail required number of mulberry saplings to PSS-CRC Dhunibesi as per its demand
9	Private traders	<ol style="list-style-type: none"> 1. Purchase the collected cocoon based on the market rate 2. Deal with the post cocoon process and development of the original silk products in the area 3. To publicize the quality of cocoon in the area and produced silk products in both Nepal and overseas collaborating with the related organizations 4. To promote the selling and deal with the silk trade

B. Coordination Committees

1. Central Level (Joint Steering Committee)

Composition:

Chairperson:	Director General, Department of Agriculture
Member:	Director, NARC (Appropriate Division)
Member:	Planning Division, MOAC, MOAC
Member:	Monitoring and Evaluation Division, MOAC
Member:	Agriculture Business Promotion and Statistics Division, MOAC
Member:	Chief, Agriculture Business Promotion Division, DOA
Member:	Executive Director, AEC
Member:	Representative, Silk traders (nominated by AEC)
Member:	National Federation of Non-Government Organization
Member:	Program Director, DOIED
Member:	Advisor (JICA)
Member Secretary:	Project Coordinator

The JSC shall meet at least three times a year in such a way that the period between the two meetings will not be more than 4 months. If the committee feels necessary, it might invite other subject matter specialists and resource persons from other organizations for consultation as and when needed.

Major Roles and responsibilities:

1. to review the performance of the project,
2. to take key decisions with respect to the project implementation
3. to develop appropriate incentive packages for private traders to encourage them to participate in the silk business and get it approved by the government at the appropriate level
4. to undertake market promotional activities
5. to oversee the implementation of the project activities in the district
6. to ensure that database of seri-farmers are updated and get timely technical support and backstopping towards the production of the quality co-coons
7. any other activities as suggested/advised by the MOAC and JICA in relation to sericulture development and promotion

2. Field Level (Field Implementation Committee)

Composition:

Chairperson:	Representative, DDC (Member- Silk Production Pocket areas)
Member:	DADO, District Agriculture Development Office, Dhading
Member:	Agriculture Development Bank, Dhading

Member:	Chairman, District Chambers of Commerce
Member:	District Cooperative Federation
Member:	Partner NGO
Member:	Farmer Experts (2- Men and Women)
Member:	NGO, nominated by National Federation of Non-Government Organization
Member	Field Advisor (JICA)
Member Secretary:	Field Coordinator
Invitees:	Project Advisor, PD and PC

The committee shall meet 12 times a year in such a way that the period between the two meetings will not be more than 1 months. If the committee feels necessary, it might invite other subject matter specialists and resource persons from other organizations for consultation as and when needed.

Major Roles and responsibilities:

1. to review the performance of the project
2. to take key decisions with respect to the project implementation in the field level
3. to ensure the quality of co-coons produced in the district
4. facilitate the organization of workshops and related activities for promotion of quality of cocoons produced in the district
5. to oversee the implementation of the project activities in the district
6. to ensure that database of seri-farmers are timely updated and maintained
7. to motivate farmers to get involved in sericulture
8. to ensure timely technical support and backstopping towards the production of the quality co-coons in the district
9. to ensure coordination and linkages among different actors and stakeholders in the district
10. any other activities as suggested/advised by the central joint steering committee in relation to sericulture development and promotion

Annex 4: Precautionary Measures to be Taken for Producing Quality Cocoons

SN	Activities	Precautionary measures to be taken	Issues/problems	Nature or type of problems	Remarks
A. Pre-co-coon production					
1	Production of quality and reliable cocoon seeds	None	-	-	The present level of self-sufficiency in cocoon seed production is maintained and the MOAC can avail healthy and pure line seeds as per demand
2	Hatching of eggs in PSS-CRC Dhumibesi/ Hatching of eggs in CRC at farmers level	Proper disinfection and appropriate management of CRC, and feeding of nutritious mulberry leaves	Carelessness, lack of sanitation and difficulties in maintaining temperature and humidity Farmers' CRC not fully utilized Farmers are not giving proper attention to provide nutritious feed to young age silkworms and poor disinfection	Technical and managerial problem	Farm/PSS-CRC level Appropriate training to the junior staff (JT/JTAs), capacity building and improvement of the physical environment and facilities at farm's silkworm rearing centre Farmer level Can be addressed through appropriate training, technical backstopping, motivation, and incentives to the existing seri-farmers to increase the number of boxes and attract new farmers in sericulture
3	Rearing of silkworms (farmer level)	Garden management (weeding, composting, timely cutting)- nutrients maintenance in the leaves	Mulberry plants are usually planted along ridges of the bari lands , spacing not properly maintained, poorly cutting of mulberry leaves, garden management not satisfactory	Technical problem	Can be addressed through appropriate training and technical backstopping
4		Overcrowding of silkworms	Lack of knowledge and skills	Technical problem	Usually observed among new seri-farmers, can be addressed through appropriate training
		Diseases (Gracery virus, Flatclery bacterial disease, Muscardin fungi diseases etc)	Overcrowding, lack of proper management, maintenance of appropriate humidity and temperature etc	Technical and managerial problems	Can be addressed through appropriate training, technical backstopping and supply of appropriate treatment, and appropriate use of RKO
5.	Mounting	Isolation of diseased/sick worms	Difficulties to identify healthy and unhealthy worms and farmers do not give necessary attention to isolate unhealthy worms	Technical problem	Can be addressed through appropriate training, provision of learning environment and motivation
		Proper mounting materials (use of mabusi), immature harvesting, late harvesting	poor technical knowledge and skills	Technical problem	Can be addressed through appropriate training, provision of learning environment and motivation

SN	Activities	Precautionary measures to be taken	Issues/problems	Nature or type of problems	Remarks
6.	Cocoon harvesting	Maintenance of appropriate environment	Lack of appropriate aeration, packaging, separation of good and bad cocoons	Technical problem	Can be addressed through appropriate training, provision of learning environment and motivation
2. Post-cocoon activities					
7.	Transportation of cocoons to collection centre	Packaging and timely bringing to the collection centres	Carelessness	Technical and managerial problems	Can be addressed through appropriate training, provision of learning environment and motivation
8.	Grading of cocoons at the collection centres	Grading of different grades of cocoons and separation of good and bad cocoons	Technical knowledge and capacities of the field staff involved in purchasing and grading of cocoons	Technical and managerial problems	Can be addressed through appropriate training, provision of learning environment and motivation
9.	Transportation of green cocoons to the PSS-RC	Timeliness and careful	Lack of vehicles and facilities to bring cocoons timely to the PSS-RC	Financial problem (vehicle)	Provision of a vehicle at PSS-CRC, Dhulikhel
10	Drying of green cocoon and killing pupas	Timeliness, appropriate methods, maintenance	Lack of appropriate driers	Technical and financial problems	Cost of drying in Japanese machine too high and staff at PSS-CRC lack technical knowledge and skills to maintain/repair machine, the machine is now in operation, continuity of using the machine is questionable, alternative mechanism not provided
11	Reeling and twisting	Not applicable	Private sector to taking appropriate role in purchasing Nepali threads	Policy, technical, institutional and financial problems	Needs to be addressed seriously. Government purchasing of cocoons, drying and reeling not sustainable in the present context. The incentive system need to be changed and private sector/traders be appropriately motivated to procure dried cocoons. Private sector./seri-farmers should be encouraged to dry cocoons

Annex 5: Project Log Frame (PDM)

Design Summary	Objectively verifiable indicators/targets	Means of verification	Assumptions
<p>Overall goals Replicate nationwide the model for quality Cocoon Production and post harvest activities nationwide</p> <p>Increase the income of ser-farmers through the improvements in the quality Cocoon production</p>	<p>By the end of the project period, silk percent in fresh cocoon will be realized by at least 17%.</p> <p>Net income of seri-farmers increased by 30 percent due to high price received as a result of improvements in the quality of Cocoon</p>	<p>Market study</p> <p>Baseline survey</p> <p>Project final evaluation</p>	<p>Peace and security situation do not further deteriorate in the country</p> <p>Baseline survey on cost of cultivation will be conducted with the beginning of the project</p>
<p>Project Purpose The quality Cocoon Production and Silk product promotion in target/model area is verified with capacity building and strengthening the linkages among ser-farmers and stakeholders</p>	<p>Shell % of fresh cocoon is maintained at 24 or more (4A)</p> <p>Percentage of good cocoon is above XXX percent by the end of the project period</p> <p>Above XXX % cocoon are uniform in terms of shape and size, and average weight of cocoon is maintained at least 1.6 gm/cocoon</p> <p>At the end of the project period, private traders will buy cocoons produced by farmers</p>	<p>Cocoon procurement report</p> <p>Seri-farmers database</p>	<p>A detail market study is carried out in the first year to identify private sector's problems and constraints to procure quality Cocoons produced by Nepalese farmers and that the government releases policies with necessary incentive packages and support (such as custom tariff rebate, credit facilities, subsidies etc) which will attract private sector to buy quality cocoons and silk threads produced in Nepal.</p>
<p>Outputs 1. The standardized technology for quality Cocoon Production and Post Cocoon harvest is established</p>	<p>Technologies available for quality cocoon production and verification at the farmers' levels</p> <p>Tested and verified low cost mountages technology available at farmers' level by the third year of the project</p> <p>By the end of the project productive area under mulberry reaches to at least 90 hectare</p> <p>Three presently operating CRCs upgraded, improved and utilized at full capacity</p> <p>One non-functioning and new CRCs (3) in three newly identified pocket areas are constructed and made operational</p> <p>At least XXX farmers field schools are established by the end of the project.</p> <p>At least XXX % seri-farmers understand the</p>	<p>PSS-CRC reports (Interim report by the end of second year, mid-term report by the end of the fourth year and final report by the end of fifth year)</p> <p>Seri-farmers database</p> <p>Sample field survey</p>	<p>Government reviews the present subsidies available to farmers and undertakes a study to assess the relevancy, effectiveness and usefulness of the different extension methods on sericulture is carried out.</p> <p>The commercial banks, as advised and assisted by the project, provide adequate loans to ser-farmers to construct scientific silk rearing houses/cottages/sheds.</p>

Design Summary	Objectively verifiable indicators/targets	Means of verification	Assumptions
<p>2. The staff's capacity for promoting the improved technology and post cocoon know-how are strengthened</p>	<p>role of the quality and quantity of mulberry leaf in the production of quality cocoons, and feed young age and late age silk worm as to their feed (mulberry leaves) requirement.</p> <p>Guideline for silk worm rearing is developed/modified in local languages based on best practice after third year of the project</p> <p>XXX % technical staff (1 officer and 6 assistant level) of the PSS-CRC Dhumibesi receive TOT on quality sericulture production (in-country and abroad),</p> <p>At least XXX% technical staff working in other sericulture farms and centres receive training on quality cocoon production covering all aspects of quality cocoon production (pre-cocoon and post cocoon production)</p> <p>Project trained all sericulture farmer experts receive at least one intensive and 4 refresher training on different subjects over a period of five years (in-country and out country)</p>	<p>Training reports</p>	<p>MOAC will not decrease the number of approved positions during the duration of the project</p> <p>Sericulture trained staff are not transferred to other faculties.</p>
<p>3. The linkage among Government, NGO and private sector are strengthened</p>	<p>Two committees with representation from the government, NGO and Private sector are formed at central and field level</p> <p>Central Committee meets at least three times a year and field committee meets at least once in a month</p> <p>Policy for enabling private sector participation for cocoon procurement is approved by the government</p> <p>XXX % procurement of the cocoon by the private sector at the end of the project</p> <p>By the third year of the project, a seri-farmers' cooperative is formed and becomes fully functional by the end of the project.</p>	<p>Decision of the MOAC to form the committees at two levels (central and field)</p> <p>Minutes of meeting</p> <p>Government/MOAC decision with regard to the private sector's participation and mobilization in procurement of the cocoons</p>	<p>A competitive and sericulture experienced NGO is selected through a competitive process.</p>

Design Summary	Objectively verifiable indicators/targets	Means of verification	Assumptions
<p>Activities</p> <p>1.1 Farmers to carry out garden management in mulberry plantations (timely cutting, plantation of appropriate varieties, composting, appropriate spacing etc)</p> <p>1.2 Undertake programs related to the improvement in silk worm rearing and prevention of diseases</p> <p>1.3 Improve incubation and silkworm rearing</p> <p>1.4 Introduce the practice of cocoon post harvest technology (drying, hand-reeling etc)</p> <p>1.5 Undertake silk product promotion</p>	<p>JICA Inputs</p> <ul style="list-style-type: none"> • Project Technical Advisor (Expert in quality cocoon production) • Short-term experts (Silk market promotion, private sector development and processing) as and when required-on call basis • Field advisor • Services of a NGO for social mobilization • Farmer expert • Costs of testing and verifying low cost mountages technology • Construction, repair and rehabilitation of CRCs (farm and community level) • Study and action research on marketing and private traders mobilization in Sericulture • Counterpart staff training (in country and out country training) • Training of trainers in quality co-coon production (professional and grassroots staff) • Farmers' training • Production of video films on important cutting-edge technologies with clear messages 		<p>Presently trained farmer experts are retained, employed and utilized</p> <p>Government develops and implements appropriate packages for attracting private traders and entrepreneurs to procure cocoons and produce end products out of silk threads produced by them with Nepalese dignity and pride.</p>
<p>2.1 Undertake institutional building of seri-farmers by NGOs</p> <p>2.2 Conduct training for seri-farmers by NGO and GON'N</p> <p>2.3 Conduct training for JT/JTAs by NGO and GON'N</p> <p>2.4 Conduct training for cocoon post harvest technology</p> <p>2.5 Hold workshops for promotion of silk product in the area</p> <p>2.6 Conduct TOT for FFSs</p>	<p>Government inputs</p> <ul style="list-style-type: none"> • Project Director • Project Coordinator • Field coordinator • Policy formulation for market promotion of silk products and use of entrepreneurs of private sector in cocoon procurement and silk products production • Establishment and operation of farmers' field schools • Credit facilities for construction, repair and maintenance of silk worm rearing sheds/cottages • Office space for the project in DOJED and PSS-CRC, Dhunibeshi • Joint Steering Committee (JSC) and Field Implementation Committee meetings 		<p>The MOAC will negotiate with ADB/N and other appropriate commercial banks to lend medium-term credit to seri-farmers for construction of rearing house, equipment and mulberry plants.</p>
<p>3.1 Hold monthly meeting to share information</p> <p>3.2 Introduce appropriate monitoring system for Joint Steering Committee</p>			

Annex 6: Quality and Grading of Cocoons

When cocoons are sold at the market, price is assessed on the basis of cocoon quality. This is judged by grading shell percent, filament length, reelability and the percentage of defective cocoons. If the percentage of defective cocoons is high, the price will be affected. This annex outlines first the characteristics of defective cocoons, and then the present system of grading. Presently, in Nepal, grading is carried out based on visual method of inspection.

Characteristics of defective cocoons:

1. Double cocoons

A double cocoon is spun by two worms, producing a filament, which does not unwind smoothly and tangles easily. As these cannot be reeled along with normal cocoons, double cocoons are used for manufacture of a coarse, non-uniform, stubby yarn called "doupion". Double cocoons may be caused by crowded mounting conditions, high temperatures, high humidity and mutation of silk species.

2. Inside stained cocoons (dead cocoons)

Dead cocoons are also known as melted cocoons. In this case, the pupa is dead and sticks to the inside shell of the cocoon causing a stain. Melted cocoons are called mutes because they do not make a sound when shaken. These cocoons are difficult to process and will result in silk, which is dull in color.

3. Outside stained cocoons

These are recognized by a rusty colour spot on the cocoon shell caused by absorption of intestinal fluid/urine of the mature worm formed during mounting. Reelability is very poor in this case.

4. Printed cocoons

This defect may happen due to improper mounting frames; these are also called scaffold pressed cocoons.

5. Malformed cocoons

These are abnormally shaped cocoons, which may arise from species variation. This defect may be due to racial characteristics and breeding with mulberry leaves stained with agrochemicals.

6. Flimsy cocoons

Here, the shell is loosely spun in layers and has a low silk content. These cocoons are easily overcooked and produce waste.

7. Thin-end cocoons

One or both ends of the cocoon are very thin and risk bursting when processed. The cause of this defect may be attributed to species characteristics or improper temperature and humidity during rearing and mounting.

8. Pierced cocoons

This happens when a moth has emerged, been eaten by beetles or in the case of the emergence of a parasite. Pierced cocoons are unfit for reeling and can be used only for hand spinning or as raw material of machine spun silk yarn.

Cocoons grading

In sericulture advanced countries, cocoons are subjected to systematic testing and grading before sale. Prices are based on the quality of the cocoons. But in developing countries, including India, there is no system for cocoon testing. Cocoons are sold on visual inspection and personal experience is relied upon in marketing of cocoons. No laws exist or compulsory testing and trading of cocoons. The result is that cocoons are simply auctioned or in certain instances, even sold at a price fixed by the concerned

government departments as in Nepal in the present situation. There is no direct correlation between price and quality of cocoons. However, cocoons are still procured after grading based on visual inspection using the percentage of cocoon shell as follows:

$$\text{Percentage of cocoon shell} = \frac{\text{Weight of 25 cocoons (without pupa)} \times 100}{\text{Weight of 25 cocoons with pupa}}$$

Weight of 25 cocoons with pupa

SN	Shell Ratio Percentage	Cocoon Grade
1.	25 or more then 25	5 "A"
2.	24 to 24.99	4 "A"
3.	23 to 23.99	3 "A"
4.	22 to 22.99	2 "A"
5.	21 to 21.99	"A"
6.	19 to 20.99	"B"
7.	16 to 18.99	"C"
8.	Less then 16	"D"

For further detail see, Annual Report of National Sericulture Development Program 2001/02, Khopasi..

Annex: 7: Tentative Action Plan

SN	Activities	Key responsibility	Project year				
			First	Second	Third	Fourth	Fifth
A.	Output 1: Standardization of technology for quality cocoon production and post cocoon harvest						
A.1	Intensive pocket (Bairini, Kumpur, Nalang, Salang)						
1.1	Assess the condition of the mulberry gardens	PSS-CRC					
1.2	Identify seri-farmers constraints and opportunities	PSS-CRC					
1.3	Establish and operate farmers' field schools	PSS-CRC, NGO, FE					
1.4	Provide refresher/follow-up training to farmer experts	PSS-CRC					
1.5	Formulate a participatory five year project for quality cocoon production by VDC	PSS-CRC, NGO, FO, FE					
1.6	Reorganize and mobilize farmers' groups	NGO					
1.7	Farmers level training on mulberry garden management						
1.8	Farmers level training on silk worm rearing						
1.9	Farmers level training on mounting, harvesting and grading						
1.10	Expansion of mulberry area	Seri-farmers					
1.11	Rehabilitation of CRC (Kumpur)	JICA Project					
1.12	Testing and verification of young age silkworms rearing technologies	JICA Project					
1.13	Testing of and verification of old-age silkworms rearing technologies	JICA Project					
1.14	Testing of low-cost mountages technologies	JICA Project					
1.15	Mid-term review of the project progress and revise logframe prepared as of S.N 1.5						
1.16	Impact assessment of the VDC projects and suggest further measures for improvements						
A.2	New pocket areas (Bhumisthan, Sankosh and MurleBhanjyang)						
2.1	Organized farmers' groups	NGO					
2.2	Identify and conduct training for farmers' experts training	PSS-CRC, JICA Project					
2.3	Provide training to farmers on quality cocoon production with emphasis on mulberry plantation and garden management	PSS-CRC, FO					
2.4	Formulate a participatory five year project for quality cocoon production	PSS-CRC, NGO, FO, FE					
2.5	Organize exposure visits for new seri-farmers	PSS-CRC, NGO, FE					
2.6	Establish farmers' field schools	PSS-CRC, NGO, FE					

SN	Activities	Key responsibility	Project year				
			First	Second	Third	Fourth	Fifth
2.7	Provide refresher/follow-up training to farmer experts	PSS_CRC, FO					
2.8	Establishment of mulberry orchards	Seri-farmers					
2.9	Farmers level training on mulberry garden management	PSS-CRC, FO					
2.10	Farmers level training on silk worm rearing	PSS-CRC, FO					
2.11	Farmers level training on mounting, harvesting and grading	PSS-CRC, FO					
2.12	Construction of CRC	JICA Project					
2.13	Application, verification and confirmation of young age silkworms rearing technologies	JICA Project					
2.14	Application, verification and confirmation of old-age silkworms rearing technologies	JICA Project					
2.15	Application, and confirmation of low-cost mountages technologies	JICA Project					
2.16	Mid-term review of the project progress and revise logframe as prepared under SN 2.4	PSS-CRC, FO					
2.17	Outcome assessment of the project activities and suggest measures for further improvements	JICA Project					
B	Output 2: Capacity building of government staff (technical) for promoting improved technologies						
3.1	Training needs assessment of DOIED, PSS-CRC Dhumibeshi staff	JICA Project					
3.2	In-country and third country training of staff on quality cocoon production	JICA Project					
3.3	Observation tours	JICA Project					
3.4	Seminar and workshops	PSS-CRC					
3.5	Refresher and follow-up training	DOIED					
C	Output 3: Linkages among Government, NGO and Private sector strengthened						
4.1	Form project Coordination committee at the central level and meeting organized	DOIED					
4.2	Form project implementation committee at PSS-CRC and meeting organized	PSS-CRC					
4.3	Select and use NGO for social mobilization through competitive basis	JICA Project					
4.4	Organization and operationalization of seri-cooperatives	NGO					
4.5	Develop the business plan of Seri-cooperatives and hand over management responsibility to it						

SN	Activities	Key responsibility	Project year				
			First	Second	Third	Fourth	Fifth
4.6	Capacity building of semi-cooperatives and technical backstopping and support						
4.7	Assess private sector's participation in cocoon procurement, and encourage them to produce end-products with Nepali pride and brand name (value addition)	DOIED, JICA Project					
4.8	Action /activities to use the findings of the study	DOIED					
4.9	Review on effectiveness of government support and subsidies to seri-farmers and suggest rationale subsidies, support and norms within the perspective of quality cocoon production (relevance, effectiveness and efficiency)	DOIED					
D	Management support (Facilitation, contribution to all three outputs)						
5.1	Develop management information system of seri farmers and train PSS-CRC and central staff	JICA Project					
5.2	Update data base of the seri-farmers in the district	PSS-CRC, DOIED					
5.3	Improvements in physical infrastructures and facilities in the DOIED, PSS-CRC etc.	JICA Project					
5.4	Appointment and use of short-term consultants/experts	JICA Project					
5.5	Provision of medium-term credit support to seri-farmers	MOAC					
5.6	Production of Videos on seri-farming, documentation of success stories, extension materials etc.	JICA Project					

Abbreviations:

CRC	Chawki resource Centre
DOIED-	Directorate of Industrial Entomology Development
FE	Farmer Experts
FO	JICA Field Office established at PSS-CRC-
JICA	Japan International Cooperation Agency
MOAC	Ministry of Agriculture and Cooperatives
NGO	Non-Government Organization
PSS-CRC	Parental Stock Source- Cocoon Resource Centre, Dhumbeshi
VDC	Village Development Committee

Note: This is a tentative work plan which will be reviewed with the start of the project, and there revised every year to adjust changed situations, contexts and project progresses

